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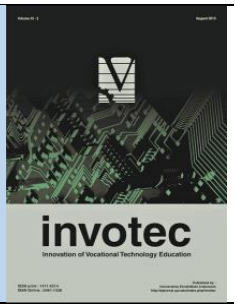

THE COMPETENCE OF TEACHERS IN PUBLIC TVET INSTITUTIONS IN THE KHARTOUM STATE OF SUDAN: CHALLENGES AND OPPORTUNITIES

Ahmed Mansour Mohammad Gasmelseed, Melaku Mengistu, Dawit Asrat
University of Gezira, Sudan

ARTICLE INFO

Article history:
Received:
Received in revised form:
Accepted:
Available online:

Keywords: TVET; teacher competence; training delivery; quality TVET

Authors email:
ahmedmansour@uofg.edu.sd;
mmelaku25@gmail.com;
dawit.asrat.getahun@gmail.com

ABSTRACT

This study's primary purpose was to examine public institutions' TVET teachers' competence in Khartoum State and its challenges and opportunities. To this end, the study used an explanatory sequential mixed method design. The researchers used primary and secondary sources of data. The primary sources were students, teachers, managers, and directors whereas the secondary data were relevant policy documents. A total of 815 respondents from 12 TVET institutions were selected using stratified, simple random and purposive sampling. Data collection instruments were questionnaires semi-structured interview guide and Focus Group Discussions (FGD). Quantitative data were analyzed through descriptive (mean scores, standard deviation) and inferential statistics (one and two-sample t-test, one way ANOVA). The qualitative data were evaluated and interpreted with narration. The study found that one, teacher competence is sufficient. Two TVET teachers were effective and competent in their delivery of the training. There was no significant difference between teachers of different TVET institutions in their perceptions about teachers' competence. It recommended that the authorities: establish clear policies and strategies for TVET, allocate the necessary budget, and follow-up to carry out this plan; establish a partnership between industry and TVET to benefit students and compensate for training deficiencies, and be more concerned with teacher training and motivating them by providing their needs.

1. Introduction

Most of the countries are currently experiencing a labor shortage, which is hindering their continued economic growth. To address this issue, it is critical to strengthen the TVET structure, with the quality of TVET teachers playing a key role (Grosch, 2017). The recommendation by UNESCO (2015) acknowledges the critical position of teaching workers to ensure the consistency and

relevance of TVET and notes that policies and mechanisms shall be established to ensure trained, high-quality TVET workers, including teachers.

Teachers should now be considered the key career of the knowledge society as learning facilitators. Improving the teachers' status, as recognized by many international and national organizations, is, therefore, a major lever for increasing the standard of education (Grollmann, 2008).

TVET teachers' competence is critical because it can influence task delivery, career growth, and graduate quality. Therefore, the duties and competencies of a TVET instructor must be specified following the requirements of various contexts, education subsystems, and institutions (Sern et al., 2018; Chakroun, 2019). Competent TVET Teachers, according to Becker & Spöttl (2019), are important for improving trainee skill growth. They are an integral part of the TVET system all over the world and are critical to the education and preparation of learners, as well as the overall performance of the TVET system. They can also simplify the student's TVET training experience and help them improve their expertise, awareness, and attitudes to meet economic and social demands. Also, teachers' competencies that are current and innovative can be used by TVET partners to provide insight on the vital position of teachers, teacher aspirations, and to direct ongoing educational needs and career management (Chakroun, 2019).

Spöttl & Becker (2016) distinguish TVET from general education. TVET educators would undoubtedly need skills that vary from those expected by their general education colleagues. There are key competencies that differentiate TVET teachers from high school teachers that must be recognized to comprehend the characteristics of TVET teachers (Wagiran et al., 2019).

With the teacher at the heart, a TVET Teacher Standard should concentrate on the three key factors listed above: teachers, learners, and learning content (Becker & Spöttl, 2019). Particularly in the field of TVET, the competence and qualification of teachers are hotly debated topics that are regarded as the most critical success factor but also a problem when it comes to delivering TVET (Grosch, 2017).

Spöttl & Becker (2016) TVET teachers should prepare, implement, assess, and enhance teaching and learning practices to ensure that learners develop occupational competencies. Competent TVET teachers should be able to teach theoretical and practical lessons besides the ability to do research work Many authorities specified the required competencies for TVET teachers. For instance, Ajithkumar (2016) stated that TVET teaching staff must have the following five competencies: "expertise in teaching and learning, flexible delivery and assessment, learner support, and industry currency" (p. 186). Furthermore, Duncan (2016) asserted that three aspects of the teacher's competency profile are particularly important: technical expertise and abilities, pedagogical skills, and existing and related industry experience. In the same vein Becker & Spöttl (2019) declared that TVET teacher profile requires not only personal and social, pedagogical, and technical skills, but also a balanced skill profile with a visible connection between personal and social skills, professional skills, and professional teaching and education skills. For Gamble (2013) TVET

teaching may be conceptualized as the interrelationship of three foundational dimensions: Technical knowledge, pedagogic competence, and practical workplace expertise.

According to Sern et al. (2018), teachers' competencies refer to skills, knowledge, attitudes, values, tasks, and appreciations related to teaching and training within the sphere of TVET. Teachers should be competent in managing classrooms and workshops. Also, they need to handle teaching aids, assess and check students' performance, apply different teaching methods. Besides, the ability to recognize students' learning styles, meet students' needs in the classroom and impart the critical necessary technical knowledge and vocational skills. Ismail et al. (2018) identified three main components of a TVET teacher: the first is personal characteristics and professionalism (dealing with the TVET institution's climate, the TVET teacher's competencies in getting to know the organization the underlying system). The second component is teaching, learning, and training. It describes the needed pedagogical and thematic, methodological expertise and skills. The third component is technological and creativity (focuses on the specifics occupational area of the TVET teacher). Another scholar, Dittrich (2006), describes four fields of competence of TVET teachers/trainers: designing training programs and curricula to suit the needs of trainees, industry, and society. Secondly, the ability to carry out research and work process studies within the specific field. Thirdly, a professional mastery of their subject; and learning and building learning environments appropriate for their specific fields. Such skills include the identification of instructional goals, the selection of teaching material and strategies, and the ability to apply effective testing and evaluation procedures.

Jafar et al. (2020) classified TVET teacher competence into Technical Competency encompasses instructional preparation, execution, assessment, classroom administration, inspiring and facilitating students, student job growth, technology integration, and subject matter mastery. Besides, Non-Technical Competencies the ability to perform research, apply technological ingenuity, invention, and critical thinking, analytical ability to analyze and look for knowledge, teamwork and communication ability, improve professional development, and leadership skills.

Wagiran et al. (2019) specified TVET teachers' hard skills aspect with the following core competencies: pedagogic knowledge, content knowledge, and educational technology. Furthermore, soft skills, or the core competencies that are regarded as very essential for potential TVET instructors, include the ability to be outstanding, trustworthy, and disciplined.

There is a complete lack of involvement of TVET teachers in industry partnerships to obtain more practical experience and update their qualifications and knowledge with what is new in the field. Many scholars (e.g., Becker & Spöttl, 2019; Paryono, 2015; Ratnata, 2015; Ajithkumar, 2016) assert the lack of industrial experience among TVET teachers which leads to the lack of industrial working culture among TVET students hampered attempts to transition the working culture to students. Duncan (2016) specified the advantages of industry expertise for TVET teachers include: acquiring current industry knowledge, skills, and experience through exposure to industry experts, a

deeper knowledge of industry demands, a greater ability to connect theory with practice, and a greater network of valuable contacts in the industry.

According to Becker & Spöttl (2019) despite widespread awareness of the critical position of teachers in ensuring young people have the required competence and skills in the face of twenty-first-century educational problems. However, many countries have failed to support teachers and provide them with the necessary resources. As a result, teachers' socioeconomic standing continues to deteriorate.

TVET teachers and trainers need assistance to include future-oriented instruction. This assistance requires access to reliable records, up-to-date technology, and facilities, as well as quality pre-service and continued education opportunities (UNESCO-UNEVOC, 2019).

For Rauner & Dittrich (2006), analyzing, designing, and evaluating the training process is part of the didactic competence of TVET teachers. It includes defining learning objectives, selecting teaching contents, using appropriate methods, and administering the examination and assessment procedures.

Guthrie et al. (2009) good teaching is often understood as requiring a learning facilitation mechanism rather than the transfer of knowledge from teacher to learner. TVET programs and institutions focus on teaching to learning and from passive users to active participants in the learning process.

Daud (2013) asserted the 21st-century education had had a significant influence on the learning and teaching method implemented in the TVET discipline. Dickson & Ladefoged (2017) called for applying active learning practices such as problem-solving approaches that link concepts in an integrated way to provide real-life examples. Also, students' engagement in hands-on activities is crucial to ensure they are prepared for the workplace. Changing a traditional teaching feature to integrate active learning elements may be as easy as adding one practical activity to enhance or analyze learning (Dickson & Ladefoged, 2017)

Bünning (2007) declared for TVET to meet various stakeholder's expectations, a transformation of teaching and learning in TVET is required. Traditional teaching and learning models are often far removed from the specificities of real-world practice. One of these transformation approaches is action learning. This approach is only possible when the teaching process is trainee-centered (Hopfner, 2009). According to Bünning (2007), action learning offers a tried and tested accelerating learning method, enabling learners to deal more effectively with difficult situations. He described it as it promotes asking questions to provoke a deep examination of the problem under investigation. Also, it encourages working in groups to share experiences and come up with innovative solutions (Bünning, 2007).

Another mode of TVET training delivery process is Competence-Based Training (CBT). Although CBT uses both a trainer-centered approach and a trainee-centered approach, the focus is more on a trainee-centered approach (Anane, 2013). He further added, CBT requires not only a different teaching approach but also evaluation and certification. In CBT programs, teachers use

various facilitation methods: Direct instruction, discussion method, small group, problem-solving, and research method (Anane, 2013).

The input-process-output framework was used in this study. Teacher competence is considered among the process factors.

2. Problem Statement

The competence of TVET teachers is very critical for the development of skilled and employable graduates. Suppose TVET graduates lack labor market skills and are incapable of dealing with the latest technologies and equipment. In that case, teachers' competence of those graduates will be questioned.

The TVET plan will include the following elements as part of the new Education Sector Support Plan 2018/19-2022/23 (MoGE, 2019): First, by involving industry in the development of education and training programs, you can encourage the development of industry-education-training partnerships. Second, advocate for a review of the TVET curriculum in order to incorporate new programs/subjects. Third, in order to improve training quality, support the equipment of target TVET institutions. Four, ensure that all eligible institutions are adequately equipped to provide effective TVET. As can be seen from the previous, the plan failed to account for teacher training, which is critical to any TVET program's success.

Also, among the TVET reform system's primary concern in 2013, TVET policy (the only TVET policy document with ILO and separated from other education sectors) is to upgrade delivery quality in the TVET institutions (Ministry of Labour, 2013). Enhancing the quality of training delivery depends on hiring competent teachers. Because of the practical nature of TVET, the practical competence of teachers is the essence of teacher training. The same above source (2013 TVET strategy) asserts that hiring teachers in TVET institutions nowadays is based on their academic qualifications. There is total ignorance of their industrial experience or practical competence. The practical experience of TVET teachers is vital to transfer the students and prepare them for the work environment. If the TVET teachers lack these practical competencies how s/he expected to deliver quality training to the students?

Given these facts, there is a need to examine the competence of TVET teachers in public institutions (technical schools, crafts institutions and Vocational Training Centers [VTCs]) of the Khartoum state from the perspectives of the main TVET stakeholders.

This study aimed to examine participants' perceptions about TVET teachers' competencies, identify any significant difference between teachers from various TVET schools and institutions about teachers' competencies, and investigate the effectiveness of TVET teachers in carrying out the training process.

The research questions include:

- How do research participants view TVET teachers' competencies?
- Is there any significance difference between teachers from various TVET institutions about teachers' competencies?
- How much effectively do TVET teachers carry out the training delivery?

3. Methods

3.1 Design

The researcher used a mixed-method design because Creswell (2012) stated that it better understands the study issue than qualitative or quantitative alone. According to Mertens (2010), the goal may be to pursue a shared understanding by triangulating data from different sources or using multiple lenses simultaneously to obtain alternate viewpoints that are not limited to a single understanding. The study employs a mixed-method approach with an explanatory sequential design. According to Creswell (2012), the reason for this approach is that the quantitative section describes the problem under study, while the qualitative section clarifies and expands the overall picture to explanations. Another possibility is that the qualitative instruments were used to provide additional information to supplement the quantitative statistical results obtained in the first step (Creswell, 2012). Simultaneously, the numerical results and their accompanying review provide a good general understanding of the research topic. While the qualitative data and their interpretations clarify and describe these statistical results by delving deeper into the researchers' opinions (Ivankova et al., 2006). The researchers used the mixed-method because it believed to be helpful in collecting the data from different TVET stakeholders (students, teachers, managers, and directors). It is useful to gather quantitative data using questionnaire from students and teachers the major TVET informant. Also, to increase the understanding and avoid the disadvantages of the questionnaire qualitative data through interviews and FGD were used.

3.2 Population and sampling

This study drew on both primary and secondary data sources; the primary data was quantitative, while the secondary data was qualitative. In Khartoum, TVET is divided into Technical Education, controlled by the Technical Education Administration in the Khartoum State Ministry of General Education. Furthermore, Vocational Training under Supreme Council for Vocational Training & Apprenticeship (SCVTA) in the Ministry of Labour Public Service and Human Resource Development. The primary data were collected from teachers, trainers, and students from Technical Education schools and Crafts institutions and VTCs affiliated with SCVTA. Furthermore, secondary data were gathered from various reports of official documents, and government policy documents.

To supplement the data, the researcher conducted Focus Group Discussions (FGD) with teachers and students and semi-structured interviews with selected TVET principals and managers and the Technical Education Administration director SCVTA manager.

According to UNESCO (2018), Sudan has 139 public TVET institutions, with 31 of them in Khartoum State. There are 26 technical institutions (technical secondary schools and artisan institutes) and five VTCs. There are approximately 672 teachers/trainers and 6532 students/trainees in these institutions.

There are 31 TVET institutions in the State, divided into three types (technical schools, artisan institutions, and VTCs), and twelve were chosen for the study using stratified and simple random sampling. The twelve institutions were chosen based on the number of teachers and students in each, four technical schools, four artisan institutions, and four VTCs. According to Cresswell (2012), it ensures the sample includes unique characteristics the researcher wishes to include in the sample and that the target stratum is reflected in proportion to the population.

The researcher obtained approval from both the Technical Education department and the SCVTA before selecting the sample. They gave the researchers letters to the principals and managers of selected TVET schools and institutions.

The researchers used the Cohen et al. (2007) method with a confidence level of 95% and a confidence interval of 4% to determine the sample size. The authors claim that researchers always chose a confidence level of 95% when choosing reasonable sample size. A total of 550 students and 320 teachers were included in the sample.

To determine the size of strata, the researchers follow the proportional allocation method. As described by Creswell (2012), it allows a proportion of high representation in the total population. The determination of strata sample size can be seen in Table 1.

Table 1. Determination of strata sample size

Occupations	Population		Sample Size	
	Students	*Teachers*	*Students*	*Teachers*
Technical Education	1766	183	149	85
Artisan	2796	326	236	155
VTCs	1970	163	166	78
Total	6532	672	551	320

The valid collected questionnaires were 491 for students and 285 for teachers, representing 89.1% and 89%, respectively, from the targeted sample.

3.3 Instruments

First, quantitative data on TVET quality were collected in this study using a questionnaire developed by the researchers. The questionnaire was distributed to selected TVET teachers and students in Khartoum State to assess teachers' competence in public TVET institutions. A semi-

structured interview with the principals and managers of TVET institutions was used to collect qualitative data. Also, a focused group discussion with both teachers and students was held to confirm their questionnaire responses.

The questionnaire consists of 14 items with five-point rating scales (1 = very poor to 5 = very good). To determine the reliability of the study questionnaire was piloted at Ombada technical school. The school is excluded from the study. The researchers administered a pilot test for the questionnaire to 27 random students and 19 teachers to ensure clarity.

Reliability was calculated through the Alpha coefficient of reliability (Cronbach's Alpha) described by Whitley & Kite (2013) as the statistic most commonly used to assess internal consistency. Changes were made based on the pilot test to produce valid and reliable instruments. The researchers used the Statistical Package for Social Sciences (SPSS) to calculate alpha. Alpha scores for the items were .927 and .944 for teachers and students, respectively. Moreover, they were .929 and .909 after data collection. According to Cohen et al. (2007), the reliability level of 0.67 or above is acceptable. Table 2 shows the Cronbach's Alpha scores.

Table 2. The scale reliability of the questionnaire items after data collection

Participants	Variables	Number of items	Cronbach's alpha	Skewness	Kurtosis
Students (N = 491)	Teacher competence	14	.929	-.695	.076
Teachers (N = 285)	Teacher competence	14	.909	-.429	.820

For the qualitative instruments, the researchers used semi-structured interviews with a case study from TVET managers. This type of research provides an in-depth understanding of the intended problem of the research. All interviews comprised of open-ended questions recorded and transcribed. I choose purposely interview twelve principals and managers from each different TVET type plus the director of technical education administration and SCVTA manager. Furthermore, the researchers used FGD with students and teachers as they represent the majority of the target population. One group from each to verify the results of the questionnaire information from research questions. In addition, the researchers examined various TVET policy documents (2013 TVET policy, 2018 Sudan Education Policy Review Education Support Sector Plan 2018/19-2022/23).

3.4 Data analysis

Various methods were employed to analyze the data collected from different sources and based on their specific nature. The questionnaire was coded and entered into the SPSS and was quantitatively analyzed using mean, standard deviations, one and two sample t-test, and one-way ANOVA. The qualitative data collected from the interview and the FGD were evaluated and interpreted with narration to complement the questionnaires' data.

4. Results and Discussion

4.1 Teacher competence

The study sought to determine participants' perceptions about TVET teachers' competencies, which is one component of the training process. Participants were asked to rate seven items on a five-point scale (1 = very poor to 5 = very good) to accomplish the aims. The mean score was 3.47 (SD =.987) for students, and 3.49 (SD =.8701) for teachers, indicating that participants considered teacher competence adequate. There is a slight difference between teachers and students, as shown in Table 2 (t = -.346, df = 742.949, p = 0.729, d =.28). T-test result for differences in perception of teachers competence between teachers and students can be seen in Table 3.

Table 3. T-test result for differences in perception of teachers competence between teachers and students

	n	Mean	SD	t	df	p	Cohen's d
Students	491	47.18	12.99	-1.498	755	.135	.11
Teachers	285	48.44	8.79				

Half of the TVET managers agreed that teachers have the necessary competencies to deliver the training according to the interview data. For example, Manager 9 states, "*The teachers and trainers here are fully qualified, and most of them have attended international training courses.*" There is also a group of TVET managers who believe the opposite. Manager 4 stated, "*Teachers' qualifications are insufficient to keep pace with development; there is a clear weakness in teachers' competence*." Both parties agreed that teachers needed additional training.

From teachers FGD, one of the teachers mentioned:

Teachers are with deficient levels of competence. These teachers were among the worst students during their studies. Despite the Ministry's efforts to qualify them, those with lower education levels were admitted to TVET as teachers when TVET was unpopular. There is a significant challenge in TVET to develop these teachers who can absorb qualification and development; it is challenging to develop TVET in these teachers' presence. Furthermore, teachers are unmotivated to carry out their responsibilities (Electronics Teacher).

Another teacher (Production Teacher) stated "*The university graduate teacher lacks practical...experience [because] universities focus on the theoretical side, while the teacher who is a graduate of technical schools has the practical experience and is an expert in the practical side*".

Furthermore, the interview data revealed the following significant challenges for teacher competence:

"*Graduate with a professional diploma should start as an assistant trainer and work their way up the career ladder to become a trainer, but in some cases, they become teachers to fill a teacher shortage*" Technical Education Department Director.

"*Hire academic teachers for technical positions and teachers who are unmotivated to participate in training*" Manager 1.

"*Most trainers are elderly; there is no generational succession; several trainers did not receive an introductory course teaching methods*" Manager 9.

"*Bachelor's holders see their work here as a stopgap until a better offer comes along; there is a lack of recognition and cooperation between them and VTC trainers*" Manager 10.

Concerning the second question, which aimed to examine if there any significant difference between teachers from various TVET schools and institutions about teachers' competencies. The rationale for this question is that in the Khartoum state there are different TVET institutions and schools. These institutions differ in terms of, admission of the students, the period students spend, the percent of practical to theory. As shown in Table 4, the test between-subject effect for the interaction between the three teachers from different TVET institutions VTCs, Technical, Artisan shows no statistically significant three-way interaction (2.571) p-value (.078).

Table 4. One way ANOVA result for differences in perception of teachers competence between teachers of different TVET institutions

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.996	2	.998	2.571	.078
Within Groups	107.554	277	.388		
Total	109.550	279			

4.2 Training delivery

The study also aimed to investigate the effectiveness of TVET teachers in carrying out the training process. The mean scores for students and teachers for all items were higher than the expected mean, except for feedback delivery the mean score for students was M = 2.87, SD = 1.927 (t = -3.304, df = 774, p = 0.001, d =.25). The same item for teachers was M = 3.16, SD =.945. The mean score was high for the other training delivery items, with teachers rated higher than students. It infers that both participants group view the way teachers deliver the training as good.

Data from the interview also confirm the above result. Many TVET managers assert that teachers deliver training in the required manner. For instance Manager 8 stated "*The teachers at*

present are well and highly qualified to enable them to deliver the training to students in the required manner".

However, students have another opinion about the process of training delivery. According to one of the students interviewed (Electricity Student), "*we are only studying theory without practical in the current period, even though all the tools and materials are available for the practical*." It implies that there is a gap in this institute's leadership and management. Furthermore, three other students from various occupations complain about their teachers and State's performance to not provide training for them.

(Mechanic Student 1) mentioned "*There was a clear deficiency in the number of teachers, after that, the deficiency was completed with a teacher of the lowest grade, not or with high efficiency*". His colleague added: "*This teacher does not teach the lesson; he just writes it*" (Mechanic Student 2). This infers that there is a deficiency in the teaching staff and as a result, the institute management tries to fill the gap with a teacher who lacks the subject matter knowledge and he is not able to explain the lesson to students. Or this teacher might lack the competence to deliver the training in a way students can grasp.

In the second research question, which sought to determine whether TVET teachers possessed the necessary competencies, participants rated teacher competence as adequate. On the one hand, managers confirm the above result based on qualitative data. On the other hand, they regard their teachers as competent, with sufficient knowledge and skills to carry out their responsibilities. The finding is consistent with Ibrahim et al. (2012), who found that participants were satisfied with their instructor's competence in Malaysia. The participants believed that their teachers are of good quality; have extensive knowledge in the subject matter.

On the other hand, the findings of my study showed that some managers and teachers believe that teachers lack the necessary competence and must be trained. Furthermore, the interview data from the director of the technical education department supported the above results. He stated:

> *For teachers who do not have the required competence and need to be trained, especially in the two-year craft institutes, the graduate with a professional diploma should be in the position of assistant trainer and move up the career ladder to be a trainer. Still, during some periods, they became teachers to cover the acute shortage of teachers. According to the ideal situation, the subject teacher is on the theoretical side and a trainer for the practical side. But this situation does not exist. If we exclude the elderly, teachers who hold a bachelor's degree represented only 15% of the total number of technical education teachers. Unfortunately, even the youth of these teachers are not motivated for any training courses because they are deprived of additional classes in the teachers union class with a rewarding financial return. Therefore, rarely will you find an instructor seeking to develop himself in his field.*

The result agrees with Ayele (2010), who revealed that most TVET teachers in Ethiopia neither perceive themselves as professionals nor active learners. One of the most critical impediments to their learning and development is their perceptions. In schools, professional partnerships are rare, and teaching is viewed as an isolated individual activity, a solitary responsibility for the instructor. There aren't many self-directed learning programs or personal learning projects. Omar et al. (2017) confirmed significant relationships between teacher competency and achievement motivation, teacher competency, and students' achievement. Teachers' practice in the classroom, such as preparing class early in the morning, having good pedagogy skills, maintaining a classroom environment, and doing their professional responsibilities towards students, will motivate them to understand the lessons effectively.

Furthermore, one teacher from FGD (Production Teacher) confirms the director's statement. He mentioned:

> *The efficiency of teachers is the core of the ministry's responsibility, and there are inspectors to evaluate the teachers' performance if it is inadequate. It is recommended that the teacher qualifies for additional courses. The university graduate teachers lack practical and educational experience because universities focus on the theoretical side. As for the teacher, a graduate of technical schools, he has practical experience and is experienced in the practical side, and they are weak in theoretical aspects.*

Harteis (2009) stated that the relationship between theoretical and practical knowledge is essential because the former is transformed into the latter through professional activities.

Similarly, the situation at VTC's also showed the exact compliance, as stated by the interview of (Manager 4):

> *There is a problem that most of the trainers are old; there is no generational succession. Also, there is a lack of recognition and lack of cooperation between university graduate teachers. Those who see themselves as better than their fellow vocational training graduates. It contrasts what was in the past in terms of interconnectedness, understanding, dealing as one family, reflected in the quality of work. It clearly shows the incompetence of the current cadres.*

The above statements prove that many unqualified teachers with less competence hold teaching positions in TVET institutions. It also revealed that most technical education teachers with diploma qualification. In addition, teachers are not motivated to in-service training to update and upgrade their competence in their field of study. One of the crucial ways to accommodate the unique feature of TVET education and maintain a qualified teacher is through Further Education and training (Ewnetu, 2016). As shown by Ahmed (2010), essential innovations and reforms on the initial and in-service training programs should be done, especially regarding practical components of the initial and in-service training to reach the professional development for teachers.

During my visits to the technical education department, I noticed that every time a teacher argues with the director and insists on being transferred from technical to academic school. It reflects

the low motivation of teachers in technical schools and craft institutions, both of which fall under the Department of Technical Education purview. And, according to one of the interviewed managers, the situation in VTCs is also not promising, as teachers are frustrated and work in an unhelpful and unstimulating environment. Aside from that, he added that there is no training at this institute. It is confirmed with Bullough (2009), who argues despite the requirement for ever-increasing competency, in-service teacher education has a negative reputation among many instructors. Teachers typically sigh at the prospect of being compelled to attend an in-service meeting. Frequently brief and ineffective, lacking in personal connection and value, and aims to do little more than raising teacher understanding of one or more topics or practices. Omar et al. (2020) argued that a low level of knowledge would negatively connotate teaching academic knowledge and attitude toward teaching and a marked lack of confidence toward teaching the subject matter among the prospective teachers.

For Obierika (2016), there is daily progress in technology. New tools and machinery are required daily to meet the complex industrial need of modern times in TVET. It, in turn, creates current skills and bodies of knowledge that necessitate vigorous training and retraining of teachers/lecturers to bring them up to date. Therefore, on-the-job training is essential for TVET programs' success and a tool for ensuring quality. The TVET institutions need to be aware of the technology changes and provide adequate support to the students (Ismail et al., 2018)

According to the 2013 TVET strategy (Ministry of Labour, 2013), teachers must have the following skills: technical skills, pedagogical qualifications, and knowledge of workplace changes. Teachers at TVET institutions, on the other hand, are hired solely based on their academic credentials, with no consideration given to their industrial experience or practical competence. Furthermore, the TVET plan will include the following elements as part of the new Education Sector Support Plan 2018/19-2022/23 (MoGE, 2019): First, by involving industry in developing education and training programs, you can encourage the development of industry-education-training partnerships. Second, advocate for a review of the TVET curriculum to incorporate new programs/subjects. Third, to improve training quality, support the equipment of target TVET institutions. Four, ensure that all eligible institutions are adequately equipped to provide effective TVET. As can be seen from the preceding, the plan failed to account for teacher training, which is critical to the success of any TVET program.

Concerning research question three, the goal was to investigate the effectiveness of TVET teachers in carrying out training delivery. According to the quantitative research findings, TVET teachers were effective and had adequate competence to deliver the training. Moreover, the interviewed managers (five of them) believed that teachers provide the necessary training. This result is in line with Ibrahim et al. (2012), who found that Malaysian teachers can deliver the training effectively.

However, three FGD students complained about the methods used by teachers to deliver the training. On the FGD, the teacher insisted that TVET teachers face significant challenges and are

unable to develop. Furthermore, teachers lack motivation for in-service training and prefer to remain in the school to teach in teacher union classes to increase their pay.

Ratnata (2015) argues that a teacher must have a unique ability in learning, which is not owned by the person who is not a teacher. Becker & Spöttl (2019) described teachers' abilities as combining practical and theoretical learning lessons in workshops, and other learning environments attach great importance to mutual respect, tolerance, and empathy.

Among examining the training, the process is to investigate the quality assurance practices at TVET institutions. The results showed that participants perceived medium quality assurance practices. M = 3.038, which implies satisfaction about quality assurance practices taken at their respective institutions. This result conflicts with Gebremeskel's (2019), who revealed that participants were not satisfied with quality assurance measures in TVET colleges of Amhara state of Ethiopia.

5. Conclusion

Teachers and input materials are the primary focus in maintaining TVET quality. TVET can produce high-quality results if teachers are adequately trained, motivated, and committed. Unfortunately, all evidence indicates that the opposing teachers are unmotivated. We visited some institutions more than five times in order to persuade teachers to complete this research questionnaire. This demonstrates how teachers are less motivated and committed to their jobs.

Furthermore, providing adequate inputs, materials, and services with trained teachers can help produce a competent graduate with adequate knowledge, skills, and attitude toward their profession. The provision of materials inputs alone, without qualified teachers and trainers, is not a viable solution. Students complained about ignoring practical work in one of the well-equipped centers, even though the necessary materials were available.

The role of leadership and management is also critical in maintaining a high-quality TVET. Assigning an excellent leader to a TVET institute with good relationships with stakeholders can help overcome many of the issues that TVET faces. This leader can secure outside funding to meet his or her school/center/institute's needs.

To meet the strong desire and demand for training, the government must pay more attention to TVET. All of the institutions visited confirmed that the number of students wishing to enroll exceeds their capacity. The total number of students enrolled in TVET institutions in the country is 31,000, accounting for approximately 3% of total secondary school enrollment (MoGE, 2019). However, we can see that TVET is not a government priority for a variety of reasons. For example, due to a decrease in the number of TVET students, many TVET institutions were equipped by the nearest academic schools. During the field visits, also the researcher noticed that one school had been relocated and its students have been assigned to the nearest academic schools, and the school

building has been converted into a center for National Examinations Certificate corrections. This demonstrates how TVET institutions were neglected and regarded as second-rate education.

References

Ahmed, H. (2010). *Building capacity of teachers and trainers in technical and vocational education and Training (TVET) in Sudan* (Doctoral dissertation). Dresden: Technische Universität Dresden.

Ajithkumar, U. M. (2016). Training of teachers: Institutionalising training and development of academic faculty of TVET institutions for realising excellence. In M. Pilz (ed.), *India: Preparation for the World of Work* (pp. 183-210), Springer Fachmedien Wiesbaden. DOI 10.1007/978-3-658-08502-5_10.

Anane, C. A. (2013). Competency based training: Quality delivery for technical and vocational education and training (TVET) institutions. *Educational research international,* 2(2), 117-127.

Ayele, A. (2010). *Influences of individual and contextual factors on improving the professional development of TVET teachers in Ethiopia* (Doctorate dissertation). Kaiserslautern: Technische Universität Kaiserslautern.

Becker, M., and Spöttl, G. (2019). *Regional TVET teacher standard for ASEAN: Essential competences for TVET teachers in ASEAN*. Bangkok: GIZ.

Bullough, R. V. (2009).The continuing education of teachers: In-service training and workshops, In L.J. Saha, A.G. Dworkin (Eds.), *International Handbook of Research on Teachers and Teaching* (pp. 159–169). Springer.

Bünning, F. (2007). *Approaches to action learning in technical and vocational education and training (TVET) – review of psychological foundations and selected teaching concepts of action learning*. Bonn: UNESCO-UNEVOC.

Chakroun, B. (2019). National qualifications framework and TVET teacher competence frameworks: A neglected dimension of qualifications reforms? *European Journal of Education,* 54, 370-388.

Cohen, C., Manion, L. and Morrison, K. (2007). *Research methods in education* (5th ed.). London: Taylor and Francis.

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Boston: Pearson Education Ltd

Daud, M. F. (2013). How effective is the assessment of generic skills gained by technical vocational education and training (TVET) of engineering students engaged in problem-based learning (PBL). In Mohd-Yusof, K., Arsat, D., Borhan, M. T. B., de Graaff, E., Kolmos, A., and Phang, F. A. (Eds.) *PBL Across Cultures* (pp. 88-94) Aalborg: Aalborg Universitetsforlag.

Dickson, M., and Ladefoged, S. E. (2017). Introducing active learning pedagogy into a technical and vocational education and training academy in Kurdistan, Iraq. *International Review of Education*, 63(5), 679-702.

Dittrich, J. (2006). Vocational disciplines - What could a general framework look like? In F. Bünning and Z. Zhao (Eds.), *TVET Teacher Education on the Threshold of Internationalisation* (pp.

111-123). Bonn: UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training.

Duncan, K. (2016). Institutions through engagements with industry: the South African experience. In F. Eicker, G. Haseloff, and B. Lennartz (Eds.) *Vocational Education and Training in Sub-Saharan Africa: Current Situation and Development* (pp. 67-73), W. Bertelsmann Verlag.

Ewnetu, H. T. (2016). TVET-University nexus: Room for synergy. In: F. Eicker, G. Haseloff and B. Lennartz (Eds.). (2017). *Vocational Education and Training in Sub-Saharan Africa: Current Situation and Development* (pp. 175-182). W. Bertelsmann Verlag.

Gamble, J. (2013). Why improved formal teaching and learning are important in technical and vocational education and training (TVET). *Revisiting global trends in TVET: Reflections on theory and practice,* 204.

Gebremeskel, M. M. (2019). The practice of quality assurance in the TVET system of the state of Amhara as perceived by major stakeholders. *Bahir Dar Journal of Education,* 19(1), 80-104.

Grollmann, P. (2008). The quality of vocational teachers: Teacher education, institutional roles and professional reality. *European Educational Research Journal*, 7(4), 535-547.

Grosch, M. (2017). Developing a competency standard for TVET teacher education in ASEAN countries. *Journal of Technology and Vocational Education,* 23(3), 279-287.

Guthrie, H., Harris, R., Simons, M., and Karmel, T. (2009). Teaching for technical and vocational education and training (TVET). In L.J. Saha, A.G. Dworkin (Eds.) *International handbook of research on teachers and teaching* (pp. 851-863). Boston, MA: Springer.

Harteis, C. (2009). Professional learning and TVET: Challenges and perspectives for teachers and instructors. In R. Maclean, D. Wilson (Eds.), *International Handbook of Education for the Changing World of Work* (pp. 1351-1366). Springer.

Hopfner, H. (2009). Action-based TVET. In R. Maclean (Ed.) *International Handbook of Education for the Changing World of Work* (pp. 1699-1710). Dordrecht: Springer.

Ibrahim, M., Z., Ab Rahman, M., N., and Yasin, R., M. (2012). Assessing students perceptions of service quality in technical educational and vocational training (TEVT) institution in Malaysia. *Procedia - Social and Behavioral Sciences,* **56**, 272 – 283.

Ismail, A., Hassan, R., Bakar, A. A., Hussin, H., Hanafiah, M. A. M., and Asary, L. H. (2018). The development of TVET educator competencies for quality educator. *Journal of Technical Education and Training,* 2, 38-48.

Ivankova, N. V., Creswell, J. W., and Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field Methods,* 18(1), 3-20.

Jafar, D., Saud, M., Abd Hamid, M., Suhairom, N., Mohd Hisham, M., and Zaid, Y. (2020). TVET teacher professional competency framework in industry 4.0 era. *Universal Journal of Educational Research,* 8(5), 1969-1979.

Mertens, D. M. (2010). *Research and evaluation in education and psychology* (3rd ed.). Los Ageles: SAGE Publications.

Ministry of Labour. (2013). Sudan TVET Policy. [Online] Retrieved from: https://www.ilo.org/africa/information-resources/publications/WCMS_243649/lang--en/index.htm

MoGE. (2019). Sudan General Education Sector Strategic Plan 2018–2023. [Online] Retrieved from: https://www.globalpartnership.org/content/sudan-general-education-sector-strategic-plan-2018-2023

Obierika, O. L. (2016). Ensuring quality in technical vocational education and training in Nigeria higher education. *Journal for Studies in Management and Planning,* 2(2), 278-287.

Omar, R., Ahmad, N. A., Hassan, S. A., and Roslan, S. (2017). Impact of perceived teachers' competence on students' performance: Evidence for mediating role of achievement motivation among vocational colleges students' in Malaysia. *International Research Journal of Education and Sciences*, 1(2), 1-5.

Omar, M. K., Zahar, F. N., and Mat Rashid, A. (2020). Knowledge, skills, and attitudes as predictors in determining teachers' competency in Malaysian TVET institutions. *Universal Journal of Educational Research,* 8(3C), 95-104.

Paryono, P. (2015). Approaches to preparing TVET teachers and instructors in ASEAN member countries. *TVET@Asia,* 5, 1-27.

Ratnata, I., W. (2015) Efforts to enhance the tvet teachers competencies through apprenticeship approach pattern in industry. *The International Journal of Technical and Vocational Education*, XI(2), 124-132.

Rauner, F., and Dittrich, J. (2006). Increasing the profile and professionalisation of the education of TVET teachers and trainers. In F. Bünning and Z. Zhao (Eds.), *TVET Teacher Education on the Threshold of Internationalisation* (pp. 35-42). Bonn: UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training.

Sern, L. C., Hamisu, M., and Salleh, K. M. (2018). Determining the elements of TVET teachers competency for Nigerian higher learning institutions. *Journal of Physics: Conference Series*, 1049(1), 012078-012087.

Spöttl, G., and Becker, M. (2016). Standards–an instrument to enhance the quality of TVET teacher training. *TVET@ Asia,* (7), 1-16.

UNESCO. (2015). Recommendation concerning technical and vocational education and training (TVET). [Online] Retrieved from: https://en.unesco.org/themes/skills-work-and-life/tvet-recommendation

UNESCO. (2018). Sudan Education Policy Review Paving the road to 2030. [Online] Retrieved from: https://unesdoc.unesco.org/ark:/48223/pf0000265447

UNESCO-UNEVOC. (2019). Virtual conference on the future of TVET teaching and learning. *TVeT Forum,* 7 to 14 October 2019.

Wagiran, P., Suyanto, W., Sofyan, H., Soenarto, S., and Yudantoko, A. (2019). Competencies of future vocational teachers: Perspective of in-service teachers and educational experts. *Cakrawala Pendidikan,* 38(2), 387-397.

Whitley, B., E., and Kite, M., E. (2013). *Principles of research in behavioral science* (3rd ed.), New York, NY: Routledge.