



Innovation of Vocational Technology Education

Available online at <http://ejournal.upi.edu/index.php/invotec>



Quality Assurance Practices in Public Technical and Vocational Education and Training Institutions in the Khartoum State-Sudan

Ahmed Mansour Mohammad Gasmelseed
 Bahir Dar University, Department of Educational Planning and Management, Ethiopia

ARTICLE INFO

Article history:

Received: 06 April 2021

Received in revised form: 01 June 2021

Accepted: 01 July 2021

Available online: 31 August 2021

Keywords:

quality;

TVET;

student perceptions;

quality assurance

Authors email:

ahmednar77@gmail.com

ABSTRACT

The primary purpose of this study was to examine the quality assurance practice of public TVET institutions in Khartoum State and its challenges and prospects. To this end, the study used an explanatory sequential mixed method design. The researcher chooses 285 teachers and 491 students from 12 TVET institutions to complete the study questionnaire using stratified and simple random sampling. Descriptive (mean scores, standard deviation) and inferential statistics used to analyze quantitative data (two-sample t-test, multiple regression analysis). Also, the researcher interviewed all of the selected TVET institution managers, technical education directors, and SCVTA for qualitative data. Besides, six teachers and nine students participated in a focus group discussion, accompanied by an observational checklist for the quantity and quality of selected input resources. Documentary analyses for TVET policy documents were also used. According to the study's findings, the amount of materials and services available at Khartoum state TVET institutions is insufficient. In TVET institutions, the input quality was poor. Students had high expectations and perceptions of TVET. It was suggested that the authorities: formulate specific policies and plans for TVET, allocate the appropriate budget, and monitor the plan's implementation; form a collaboration between industry and TVET to help students and compensate for training deficiencies, and pay more attention to teacher training and motivation by meeting their needs.

1. Introduction

Education and training play vital role to contribute by encouraging the transition to a more productive economy that makes the most of the potential of digital technologies and builds on regionally and globally competitive domestic companies (European Training Foundation, 2019). With a declining economy and rising unemployment, Technical Vocational Education and Training (TVET) is required. It plays a vital role in training young people beyond primary education (Akanbi, 2017; Hawley, 2009).

TVET is a form of education; it comprises studying technologies and related sciences and acquiring practical skills, attitudes, understanding, and knowledge relating to occupations in different economic and social life fields, leading to industrial development (UNESCO, 2005a). According to Lauglo (2009), the only way to achieve performance at work is through TVET.

TVET is delivered differently in different countries and by various agencies and entities, even though the goals are the same. All TVET initiatives aim to improve employability and promote society and development in general (Badawi, 2013).

TVET is required, which plays a vital role in preparing young people for life after high school (Hawley, 2009). TVET has substantial benefits for a country's economic and social development. These advantages are available at all levels, including social, group, and community.

For Centre, Européen pour le Développement de la Formation (CEDEFOP) (2011a), the main economic benefits are reducing unemployment and inequity caused by more persons achieving a TVET qualification regarding labor market results and company performance. We can see the social advantages of participation in TVET programs through positive changes in society. The impact on families, social cohesion, and reducing crime in the community is social benefits.

Unless quality TVET is maintained, we cannot achieve the advantages of TVET. Furthermore, quality TVET is only possible if all components are institutionally established, as it is the cause of TVET supplies and graduates on the job market. (International Labour Organization [ILO], 2019). Quality TVET aids in developing precise science and technological knowledge in a broad range of fields where technical and practical abilities and specialized professional skills are needed (UNESCO & ILO, 2003). According to Aring and DePietro-Jurand (2012), for the most helpful quality, we can see the following features in TVET systems: leadership and transparency, continuous enhancement, public-private collaborations, flexible funding, replicability, and the program's or system's economic and social effects.

UNESCO and ILO (2003) proposed that accountable national authorities develop guidelines and standards that apply to all aspects of TVET to ensure quality TVET. The guidelines cover all forms of acknowledgment of achievement and subsequent certification subject to annual review and evaluation. According to UNESCO and ILO (2003), it includes personal skills, teachers' ratios to learners, curriculum level, and education materials. Quality requires security precautions for learning and working environments, besides physical infrastructures, offices, libraries, laboratory layouts, and equipment standard style.

According to Malechwani (2020) and ILO (2015), the standard of TVET is determined by the quality of teaching resources inputs, the competencies of instructors, the working and learning atmosphere, and the competence and employability of graduates. If we preserve the quality of the three previous ones, the three will be guaranteed.

According to Grover and Singh (2002) and UNESCO (2005b), materials inputs in TVET include human and material resources available for teaching. The material resources comprise workshop rooms, textbooks, books, reference materials, libraries, computer rooms, and other facilities. Human

resource inputs include managers, administrators, other support staff, supervisors, inspectors, and teachers (UNESCO, 2005b). Providing material inputs is needed for training institutions to perform their role effectively and efficiently. Chukwunwendu (2015) illustrated that computers had become essential devices that will help develop the learning skills of TVET trainees. The networking-based Information and communication technology (ICT) applications become the crucial tools for both administrative, institutional management of teaching and learning methodologies and the operation of TVET systems. In the same vein, Schuwer and Janssen (2018) pinpointed that TVET systems need continuous transformation and expansion to meet the requirements of different stakeholders. ICT will serve as a way of making this required TVET transition. They further assert, "ICT has the potential to improve access to, and quality of, learning, increase efficiency, reduce costs, foster innovation, make teaching and learning more relevant to people's work and lives and prepare individuals to become lifelong learners" (p. 2).

TVET leadership is essential for the sector's economic success, so effective leadership is a significant variable that must be considered in the current TVET environment (Boateng, 2012; Crossman & Cameron, 2014). According to Suberi (2013), a successful leader is one of the most critical factors in evaluating an organization's performance in handling the next generation of professional students; in executing policies efficiently in a creative manner. Besides, teacher and training programs can only be successful if leaders show their dedication through active involvement and sufficient time and financial support for teacher training (CEDEFOP, 2011b).

For CEDEFOP (2011b), leadership is essential to implement change in any educational institution and plays a critical role in organizational readiness to sustain quality. Boateng (2012) asserts that TVET exists in an environment that witnesses many changes such as work, technology, and public demand on TVET system to produce skilled individuals. Herein lies the importance of leadership quality and its ability to cope with these rapid and continuous changes.

To deliver quality TVET is strongly correlated with the strengthening of professional management and leadership capabilities. It is also connected with establishing an effective qualifying structure and monitoring mechanism for driving the whole system (African Union, 2007). One of the critical goals of the African Development Bank (2015) project on capacity building is to enhance the quality of TVET in Sudan and upgrade educational and training policymakers' management skills leading to the institutionalization of core skill development functions.

In Sudan, the Ministry of General Education (MoGE) (2019) report stated that one of the specific tasks of the Federal Education Ministry is to take necessary measures to promote and develop TVET. The same source asserts that the aim is to expand the TVET programs, which means increasing the number of students entering to TVET institutions as it appears the concern for the quantity of enrollment not on the quality service and graduates of this vital sector. It is better to have a few qualified TVET graduates rather than raise the number of students who lack the required skills to deal with the changing complexity of the labor market. From this come the importance and the

need to increase the concern for the quality of TVET institutions to produce skilled cadres that get decent job opportunities that contribute to the social and economic development of the country.

2. Problem Statement

In 2018, Sudan had approximately 239 public TVET institutions, with 36 (15%) located in the State of Khartoum (National Council for Technical & Technological Education [NCTTE], 2018; UNESCO, 2018). There were approximately 31000 students in those schools, of which about 10232 (33%) were from the state (NCTTE, 2018; UNESCO, 2018; Supreme Council for Vocational Training & Apprenticeship [SCVTA], 2019).

TVET institution quality is essential for the production of qualified and employable graduates. If TVET graduates lack the expertise needed by the labor market and cannot cope with cutting-edge technology and machinery, the efficiency of those graduates would be called into question. There is a need to equip graduates with the necessary skills to work in real jobs and advance toward improved working standards and, eventually, better opportunities. It necessitates an appreciation of the existing TVET system's consistency and this program's ability to meet emerging labor market demands (Japan International Cooperation Agency, 2010).

The critical component of the country's five-year Education Sector Strategic Plan, which is part of the National Development Strategy, is to foster human resource growth through the geographic extension of high-quality TVET services (MoGE, 2012). Furthermore, one of the primary concerns of the TVET reform mechanism in the 2013 TVET agenda is to improve the quality of delivery in TVET institutions (Ministry of Labour, 2013).

MoGE (2019) describes TVET quality in Sudan as inadequate, so it needs to be strengthened to attract more students. Furthermore, from the experiences of various TVET teachers, there is an ongoing complaint from all involved in TVET regarding the low quality of their institutions. Also, from Sorkati et al. (2016) study, employers in Sudan stated that they sometimes or frequently experience difficulty recruiting workers with the required skills.

But, according to the study carried by experts from both MoGE (2019) and UNESCO (2018), seeking to enhance the quality of the education and training outputs entails evaluating the quality of the system inputs, which includes teachers, instruction, school facilities, and resources, beside the student's commitment to TVET. There is a need to consider the role of resource supply, students' perceptions, and aspirations for TVET as factors that indicate quality assurance practices.

This study aimed to identify if the material inputs (facility, machinery, consumable materials) are supplied to TVET institutions; to determine if TVET teachers and students view students' perceptions and aspirations for TVET.

The research questions include:

- To what extent materials inputs (facility, machinery, consumable materials) are supplied to TVET institutions?

- How do students and teachers feel about students' perceptions and aspirations for TVET?

3. Methods

3.1 Design

The researchers employed a mixed-method research design that uses quantitative and qualitative data to answer a particular question or set of questions. Qualitative data can be combined with quantitative, from a larger-scale study on the same issue, allowing our research results to be generalized for future assignments and examinations (Hesse-Biber, 2010). As Creswell (2012) stated, the mixed-method provides a better understanding of the study problem than either qualitative or quantitative alone.

The study employs a mixed-method approach with an explanatory sequential design. It starts with quantitative methods and then follows up with qualitative methods, usually to help explain the initial quantitative results. In this approach, the quantitative part describes the problem under study, while the qualitative section clarifies and expands the overall picture to explanations.

3.2 Population and sampling

The primary data collected from teachers, trainers, and students from Technical Education schools and Crafts institutions and VTCs affiliated with SCVTA. Furthermore, secondary data gathered from various research documents, reports of official documents, and government policy documents. Besides, to supplement the data, the researcher conducted FGDs with teachers and students and semi-structured interviews with selected TVET principals and managers and the Technical Education Administration director and SCVTA manager.

According to NCTTE (2018) and 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.

From the 31 TVET institutions, 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 Creswell (2012), the sample includes the unique characteristics that the researcher wishes to have in the sample. 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 me letters to the principals and managers of selected TVET schools and institutions.

To calculate the sample size, the researcher used the Cohen, Manion, and Morrison (2007) procedure with a confidence level of 95% and a confidence interval of 4%. When selecting a suitable

sample size, researchers often choose a confidence level of 95%. The sample size was made up of 550 students and 320 teachers (See Table 1).

I use the proportional allocation approach to calculate the scale of strata. According to Creswell (2012), this makes for a high percentage of inclusion in the overall population.

Table 1. Determine 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

Four hundred ninety-one students and 285 teachers, representing 89.1 percent and 89 percent of the targeted survey, were gathered in relevant questionnaires.

3.3 Instruments

First, quantitative data on TVET quality were collected using a questionnaire developed by the researcher. The questionnaire was distributed to selected TVET teachers and students in Khartoum State to assess the practice of quality assurance in public TVET. 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 input quantity for 16 items with four rating scales (1 = No at all to 4 = More than adequate). Then, three packages consist of quality inputs package for 16 items, students perception and aspirations seven items, and quality assurance 12 items with five-point scales (1 = very low to 5 = very high).

The questionnaire was piloted at Ombada Technical School to establish the reliability of the study questionnaire. The school is not included in the research. To ensure the questionnaire is clear, the researcher administered the pilot test to 27 random students and 19 teachers.

Reliability was calculated through the Alpha coefficient of reliability (Cronbach's Alpha) described by Whitley and Kite (2013) as the statistic most commonly used to assess the internal consistency of a measure. Changes were made based on the pilot test to produce valid and reliable instruments. The author used the Statistical Package for Social Sciences (SPSS) to compute alpha. The corresponding alpha scores for the four packages were .920, .927, .923, and .921. After data processing, it was .858, .917, .929, and .851. Cohen, Manion, and Morrison (2007) define adequate reliability as 0.67 or higher.

3.4 Data analysis

To analyze the data collected from different sources and based on the specific nature of the data, various methods were employed. The researcher coded and entered the questionnaire into the SPSS and were quantitatively analyzed using mean, standard deviations, t-test, and simple linear regression. The independent samples t-test was used in question one to identify if the material inputs are supplied to TVET institutions. Also, the same test will be employed for questions two and three. A simple linear regression was used to determine the significant predictors of TVET quality assurance practice among inputs quantity, inputs quality, and students perceptions factors. To supplement the data obtained by questionnaire, the qualitative data from the interview and the FGD were analyzed and interpreted with narration.

4. Results and Discussion

4.1 Resource supply and services in TVET institutions/schools

4.1.1 Inputs quantity

One of the significant impediments to TVET institutions' ability to provide quality service is the availability of materials inputs. The primary goals of this research is to determine whether or not TVET institutions receive materials inputs (facilities, machinery, and consumable materials). Participants were asked to rate or assess a set of training materials and services. To that end, a four-point scale (no at all, inadequate, adequate, and more than adequate) was employed. For example, 45 percent of participants thought the number of workshops was insufficient. Furthermore, the participants rated the number of machines, equipment and hand tools, and consumable materials as inadequate, with 60.9 percent, 61.5 percent, and 69.8 percent, respectively (see appendix 7).

When an independent t-test on input quantity was performed between teachers and students, the mean score for students was ($M = 2.17$, $SD = .437$) and teachers ($M = 1.99$, $SD = .285$) shown in Table 2. It demonstrates that both participant groups believe that the number of materials and services available at TVET institutions is insufficient. It means that participants from various TVET institutions are unhappy with the availability of inputs and services. The outcome of the t-test ($t = 6.26$, $df = 774$, $p = .000$, $d = 0.45$) revealed a medium difference between teachers and students.

Table 2. Independent t-test between teachers and students on inputs quantity

Variable	Levene's Test for Equality of Variances	Test of Equality of Sig.	t-test for Equality of Means				Cohen's d
			t	df	Sig. 2-tailed	Mean Difference	
Inputs Quantity	55.239	.000	6.255	774	.000	.180	.45
			6.965	763.625	.000	.180	

Based on the researchers' observations and study results, we can categorize TVET institutions into three categories based on the availability of materials inputs: well-equipped institutions that are supported and regularly updated by foreign countries such as China, Korea, and Germany; medium-equipped institutions that have connections with local and foreign organizations and have good graduates reputation and ill-equipped institutions, which comprise the vast majority of TVET institutions, with outdated machines and no updates.

Even in well-equipped institutions, there is suffering from students' absence of raw materials to perform the practical. As stated by Manger 9, "Our equipment is in very good condition. Our problem is in the unavailability of consumed raw materials. The budget allocated by the Supreme Council is not sufficient for our needs for raw materials, but the institute's resources ... help us complete the shortage".

The country 2013 TVET Strategy described the training materials as an essential element of TVperfect, and each institute must have adequate equipment to support effective learning. The strategy also suggests workplace learning as a choice to avoid the scarcity of training materials.

4.1.2 Inputs quality

In terms of input quality, participants were asked to rate 16 items (resource supply and service quality) on a five-point scale (1 = very low to 5 = very high). The mean score was 2.13 (SD =.725), indicating that the participants thought the input quality was poor. It also suggests that research participants are dissatisfied with the quality of inputs at their respective institutions. As shown in Table 3, the difference between teachers and students is medium ($t = 6.965$, $df = 763.625$, $p = 0.00$, $d = .45$).

Table 3. Independent t-test between teachers and students on inputs quality

Variable	Levene's Test for Equality of Variances		t-test for Equality of Means				Cohen's d	
	F	Sig.	t	df	Sig. 2-tailed	Mean Difference	Std. Error Differ	
Inputs Quality	96.239	.000	6.255	774	.000	.180	.124	.45
			6.965	763.625	.000	.180	.129	

In terms of input quality, Manger 9 stated that the last day of the week is the administrative day when equipment and tools are reviewed and confirmed. Another Manager 1 said, "We maintain quality by forming student committees to monitor workshops and equipment; it is difficult to maintain quality."

4.2 Students perceptions and aspirations

Examining student perceptions and aspirations for training in TVET institutions is part of the outputs component investigation. Participants were asked to assess seven items on a five-point scale (1 representing very low to 5 very high). The mean scores for teachers and students were (M= 3.46, SD= 0.628), (M= 3.37, SD= 0.928), and (M= 3.37, SD= 0.928), respectively. It indicates that both teachers and students place medium to high value on student perceptions and aspirations for TVET (See Table 4).

Table 4. Independent t-test between teachers and students on student perceptions and aspirations

Variable	Levene's Test for Equality of Variances F	Test Sig.	t-test for Equality of Means					Cohen's d
			t	df	Sig. 2-tailed	Mean Difference	Std. Error Differ	
Student perceptions	37.698	.000	4.526	774	.000	0.284	0.062	.33
			4.933	740.949	.000	0.284	0.057	

Students from FGI demonstrated high aspiration and a positive perception of TVET. One of the participants (Production Student) stated that after finishing his grade exams, he informed his parents about his desire to attend a TVET institute because he aspires to be like his relative, who graduated from VTC and landed an excellent job salary. Similarly, students and graduates from automobiles return to TVET after beginning their studies at academic institutions. According to Manager 8's interview, "there is a great desire behind it the preference companies and factories to our graduates who can be developed."

A multiple regression was calculated to predict TVET quality assurance practices based on the input quantity, input quality and, student perceptions. As we noticed from Table 5, a significant regression equation was found ($F(3, 772) = 166.835, p < .000$), with an R^2 of .393. Here, $p < 0.000$, which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts the outcome variable. The variables inputs quality $p (.000) < .05$ and student perceptions $p (.000) < .05$ added statistically significantly to the prediction.

The highest contributing predictor is student perceptions (.438) and, and the next is, inputs quality (.424) to explain TVET quality assurance practices. We cannot find the multicollinearity problem in the model as VIF for all variables is < 10 (or Tolerance > 0.1).

Table 5. Coefficients results of regression analysis

	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	β	St. Error	β		
(Constant)	.241	.157		1.539	.124
inputs quantity	.186	.075	.085	2.481	.013
inputs quality	.424	.041	.352	10.295	.000
student perceptions	.438	.029	.428	15.125	.000
Overall R square	.393				

With regard the first research question, which aimed to examine the supplies of materials inputs into TVET institutions, the findings revealed that participants consider the number of materials and services at TVET institutions insufficient. The director of technical education in Khartoum stated that their equipment is currently in poor condition, with worn-out equipment and old machines in the state's second-largest school (Omdurman technical school). Despite labor market development, the machines are over 30 years old and have not been modernized.

The manager of the school mentioned above confirms that the school's workshops, machinery, and equipment are in disrepair due to a lack of Ministry maintenance and support. He claims that they work with the insufficient backing and personal resources, which he claims has a negative impact on the efficiency of our graduates. He went on to say that the ministry had stopped supplying raw materials to the school. They make up for the shortfall by referring to large corporations, factories, and organizations that provide equipment to the school.

For example, the school had a production department workshop with many idle machines. The teacher is solely reliant on theory. This result appears to be consistent with Melaku's et al. (2019) findings, who investigated the supply of material inputs as one of the quality assurance practices in the Amhara state of Ethiopia. This study's findings are consistent with Dike's (2013) findings, revealing that a lack of equipment/teaching and learning materials is a significant issue for TVET schools in Nigeria.

Fortunately, as stated by the director of technical education in the state of Khartoum, they substitute that in cooperation with military institutions that have updated and well-equipped workshops and machines to train our students to compensate for this deficiency in input materials.

In terms of input quality, the findings revealed that participants believe Khartoum's TVET institutions have a low level of input quality. One TVET manager (Manager 5) stated that all inputs, including trainer quality and qualification and student levels, are declining.

One of the interviewed school principals (Manager 1) stated that an organization comes to the school to rehabilitate the school's workshops and machines. Still, due to poor management, the maintenance bid was assigned to an unqualified company rather than rehabilitation. It caused property damage and electrical failure in the workshops, which it has yet to repair.

There are institutions with qualified in terms of input. Still, because teachers are less competent and less motivated to work, these inputs are not utilized, and this is reflected in the quality and efficiency of the graduates.

In terms of student perceptions and aspirations, which is a process factor, the findings revealed that both participant groups place student perceptions and aspirations for TVET between medium and high. Students came in large numbers for admissions to some prestigious institutes, filling the institution's capacity five times. It reflects the students' and their families' strong desire to enroll in TVET institutions. All interviewee managers and the FGD of teachers and students confirm that TVET students have positive perceptions of training and high aspirations. The reasons behind that there is an intense desire for companies and factories to prefer TVET graduates who can be developed. It was confirmed by one of the interviewed company managers. They stated that they prefer to hire TVET graduates because they have the fundamental skills and can prove themselves with additional training. Another reason for the increased desire to join TVET is the opening of opportunities to enter universities.

Students with high aspirations enroll in TVET institutions. They are aware that they will be required to wear an overall beginning on their first day here and that there will be no more theoretical subjects. Unfortunately, especially in technical schools, they discover that 50% of theoretical subjects are even more difficult than academic track subjects. According to (Electronics Teacher), is one reason for a drop in the performance of students who come in with higher grades.

It recommended spending more to maintain good quality to prioritize TVET quality. As the (Electricity teacher) mentioned, if we want quality TVET, we must focus on two things: strategic planning and adequate funding. The entire valuable component for quality TVET must be planned. Furthermore, sufficient funds must be allocated to meet the previously established plan. TVET is costly, and it necessitates long-term funding. TVET is not a priority for the government, which is the only source of financing. TVET received the least amount of the funding from the allocated education budget, according to MoGE (2019), when compared to the other education sectors (8 percent). According to Ibrahim et al. (2013), funding for service institutions such as TVET is based on what the Ministry of Finance can afford to pay rather than on plans. According to the same source, TVET institutions in Sudan are free to generate their revenue. However, because all funds must forwarded to the public treasury, TVET institutions cannot keep and spend the income generated. This, understandably, discourages TVET institutions from generating their revenue and jeopardizes long-term viability. One of the interviewed managers also confirms the initial point (Manager 11).

4. Conclusion

Input materials and students' commitments to TVET are the central focus in maintaining TVET quality. Students' perceptions and aspirations about TVET are the first steps to produce competent graduates. This aspiration would lead the students to overtakes obstacles in his/her way to reach

the mastery of the profession. Furthermore, providing adequate inputs, materials, and services with trained teachers can aid in producing a competent graduate with sufficient knowledge, skills, and attitude toward his or her profession. However, the provision of materials inputs alone, without committed teachers and students, is not a viable solution. Students complained about ignoring practical work in well-equipped centers, even though the necessary materials were available.

The position of leadership and management is also crucial in ensuring a high-quality TVET. Assigning an excellent leader to a TVET institute with good relationships with partners will help solve many of the challenges that TVET faces. This leader will secure funds beyond his institution to fulfill his/her needs.

The government needs to concern more about TVET to satisfy the high interest and demand for instruction. The number of students wishing to register exceeded their ability agreed all the institutions visited. The overall number of students enrolled in the national TVET-institutions is 31,000, accounting for around 3% of total secondary education (MoGE, 2019). We can see, though, that for several reasons, TVET is not a government priority. If the number of TVET students decreased, many TVET institutions were fitted by the closest academic school. For example, on the field trips, I have found a relocation of a school and the transfer of its students from the nearby academic schools and the school's transformation to a national exam certificate corrections center. It shows how TVET institutions have been ignored and considered to be secondary education.

There should be research on TVET teachers' competence, considering the crucial roles teachers can play in assuring the quality of TVET institutions. Besides that, investigate the role and practice of TVET leaders in quality assurance. Furthermore, more studies on strengthening the partnership between TVET institutions and industry to avoid the deficiency of inputs supply and increase the graduate's skills and competencies.

References

- African Development Bank, (May, 2015). "Capacity building for improved quality of the education system and skills development," [Online]. Retrieved from: <https://www.afdb.org/>
- Africa Union, (2007). "Strategy to revitalize technical and vocational education and training (TVET) in Africa," [Online]. Retrieved from: <http://lekiworld.com/AU/docs/15.pdf>
- Akanbi, G. O. (2017). Prospects for technical and vocational education and training (TVET) in Nigeria: Bridging the gap between policy document and implementation. *The International Education Journal*, 16(2), 1-15.
- Aring, M., and DePietro-Jurand, R. (2012). "EQUIP3: Technical and vocational education and training Education Development Center," [Online]. Retrieved from: <http://idd.edc.org/>
- Badawi, A. A. (2013). "TVET and entrepreneurship skills," In *Revisiting Global Trends in TVET: Reflections on Theory and Practice* (pp. 275-308). Bon, Germany: UNESCO-UNEVOC.

- Boateng, C. (2012). Restructuring vocational and technical education in Ghana: The role of leadership development. *International Journal of Humanities and Social Science*, 2(4), 108-114.
- CEDEFOP, (2011a). *The benefits of vocational education and training*. Luxembourg: Publications Office of the European Union.
- CEDEFOP, (2011b). *Exploring leadership in vocational education and training*. Luxembourg: Publications Office of the European Union.
- Chukwunwendu, A. F. (2015). New dimensions in sourcing and utilization of resource materials for effective teaching and instruction in technical vocational education and training (TVET) in Nigeria. *Education Journal*, 4(6-1), 24-30.
- 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.
- Crossman, B., and Cameron, R. (2014). A comparative thematic review of vocational leadership literature from the USA, Great Britain and Australia. *Research in Post-Compulsory Education*, 19(4), 393-416.
- Dike, V. E. (2013). *Technical and vocational education and training (TVET): Understanding the Nigerian experience*. Doctoral dissertation, Drexel University.
- European Training Foundation, (2019). "Policies for human capital development North Macedonia: An ETF Torino process assessment," [Online]. Retrieved from: <https://www.etf.europa.eu>
- Grover, S., and Singh, N. H. (2002). *The quality of primary education: A case study of Madurai and Villupuram districts in Tamil Nadu, India*. Center for International Development, Harvard University.
- Hawley, J. D. (2009). "Overview: Regional reviews of TVET," In R. Maclean and D. Wilson (Eds.), *International Handbook of Education for the Changing World of Work* (pp. 515-529). Dordrecht: Springer.
- Hesse-Biber, S. N. (2010). *Mixed methods research: Merging theory with practice*. New York, NY: The Guilford Press.
- Ibrahim, K. I., Mahmoud, A. H., Paul, M., and Abdelrahim, H. (2013). *Skills development in Sudan: The formal and the informal reality*. In Thematic Policy Paper. Geneva: ILO.
- ILO, (2015). "Integrating core work skills into TVET systems: Six country case studies," [Online]. Retrieved from: <https://www.ilo.org/>
- ILO, (2019). *Guidelines for model TVET institutions (MTIs)*. Dhaka: Author.
- Japan International Cooperation Agency, (2010). "The study on vocational training system development in the republic of Sudan: Final report summary," [Online]. Retrieved on from: <https://www.jica.go.jp/>
- Lauglo, J. (2009). "Research for TVET policy development," In *International Handbook of Education for the Changing World of Work* (pp. 891-904). Springer, Dordrecht.

- Malechwani, J. M. (2020). Effects of Engagement and Resources on Learning Outcomes in Vocational Colleges: Emerging Research and Opportunities [Adobe Digital Editions version]. <http://doi:10.4018/978-1-5225-9250-1>
- Melaku, G., Labroo, M., Liyu, H., Shilai, Z., Guangfu, H., Jing, Z., ... and Hu, F. (2019). Genetic diversity and differentiation of the African wild rice (*Oryza longistaminata* chev. et roehr) in Ethiopia. *Scientific African*, 6, e00138.
- Ministry of Labour, (2013). *Sudan TVET Policy*. Khartoum: Author.
- MoGE, (2012). "Interim basic education strategy," [Online]. Retrieved from: <https://www.globalpartnership.org/>
- MoGE, (2019). "General education sector strategic plan: 2018/19 – 2022/23," [Online]. Retrieved from: <https://www.globalpartnership.org/>
- NCTTE, (2018). 'lihsaiyat 2017 – 2018 AD. [Statistics 2017 – 2018 AD].
- Schuwert, R., and Janssen, B. (2018, May). Technical vocational education and training: The 'dark continent' in OER. Paper presented at the *Open Education Global Conference*. Delft, the Netherlands.
- SCVTA, (2019). "Marakiz altadrib almahnii fi alsuwdan [Vocational training centers in Sudan]," [Online]. Retrieved from: <http://www.scvta.gov.sd/>
- Sorkati, A., Khalid, I., Waheed, E., and El Ashmaw, A. (2016). *A tracer study of technical vocational education and training institute graduates in Khartoum State*. Geneva: ILO.
- Suberi, A. M. (2013). Review on leadership style among TVET lecturers. *International Journal of Science and Research*, 4(5), 2619-2622.
- UNESCO and ILO, (2003). "Technical and vocational education training for the 21st century," [Online]. Retrieved from: <https://unesdoc.unesco.org/ark:/48223/pf0000220748>
- UNESCO, (2005a). "Revised recommendation concerning technical and vocational education (2001)," In: UNESCO (ed.) *Normative instruments concerning technical and vocational education*. Paris: UNESCO.
- UNESCO, (2005b). *Education for all: The quality imperative*. Paris: Author.
- UNESCO, (2018). "Sudan Education Policy Review Paving the road to 2030," [Online]. Retrieved from: <http://unesdoc.unesco.org/>
- Whitley, B. E., and Kite, M. E. (2013). *Principles of research in behavioral science* (3rd ed.). New York, NY: Routledge.