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Evaluation of Technical and Vocational Education and Training (TVET) Programmes in Nigeria: The Kirkpatrick Model

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ABSTRACT

This study aims to evaluate the Technical and Vocational, Education and Training (TVET) program in the Federal Polytechnic Ilaro using the Kirkpatrick model. The model provided a very reliable and valuable framework for evaluating education and technical training or programs with four levels of Behaviour, Learning, Reaction, and Outcome/Impact. The study population is 14290 students registered during the 2021/2022 academic session of the Institution. Krejcie and Morgam's (1974) sampling technique was adopted to have a 375 sample size for questionnaire administration purposes. The study purposively selected 375 sample sizes among the graduating classes in three out of five faculty, in which the institution was divided, to represent fifty percent of the stratification. The choice of graduating classes is to have those that are about to complete their academic program, and have gone through TVET-inclined programs for self-evaluation on the changes in their behavior, learning, reaction, and noticeable outcome-impact of TVET program on them in their immediate business environment. Descriptive and inferential statistics were adopted for analysis. The result of the findings through regression analysis produced an Adjusted R-Square of -0.005, F Statistics of 0.363, and a significant value of 0.780, which indicate that Learning, Behaviour, and Reaction did not influence the Outcome or Result of the TVET program. It was concluded that learning, reaction, and behavior were adequate in the TVET program with most respondents agreeing to the variables used to test the three levels, but had no influence on the Outcome/Impact on the improvement in

the trainee's life after the program in the Federal Polytechnic, Ilaro, Nigeria.

Keywords
Kirkpatrick Model
Learning Behaviour
Self-evaluation
TVET

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Introduction

The acquisition of knowledge and competencies plays a crucial role in the advancement of a nation's social, political, and technological development. In the current context, the significance of Technical and Vocational Education and Training (TVET) is evident as it plays a crucial role in equipping individuals with the requisite knowledge and entrepreneurial abilities that are in high demand within the growing global labor market [1]. According to Ref. [2], the inclusion of TVET courses is of utmost importance as it equips young individuals with tangible job skills. Consequently, this approach addresses the pressing concern of youth unemployment and helps alleviate the adverse socio-political and economic consequences associated with it. Ref. [3] and [4], posit that the TVET program has a positive impact on the issue of young unemployment, socioeconomic advancement, and social integration. The revised concept of TVET encompasses the integration of education, training, and skills development across various occupational domains, services, production, and livelihoods, as stated by UNESCO [5] and cited by Ref. [6]. According to Ref. [1], TVET is an extensive curriculum encompassing the examination of technologies and associated sciences, alongside the acquisition of practical attitudes, skills, knowledge, and comprehension of various professions within diverse social and economic sectors.

Nevertheless, the outcomes of the implementation of the TVET curriculum in Nigeria have not met the anticipated objectives. The subject under discussion pertains to the ongoing discourse surrounding the employability of Nigerian graduates, as evidenced by the works of Ref. [1], [2], [7]. The complexity of this matter is exacerbated by the current high rate of youth unemployment in Nigeria, estimated at over 40% [8]. Moreover, it is imperative to underscore that the poverty rate in the United States has a significant impact on around 90 million individuals, which accounts for 40% of the population. The assessment of TVET programs in Nigeria holds significant importance in comprehending the challenges they face and their potential to replicate the achievements observed in industrialized nations and certain developing countries globally. Ref. [9] posits that the assessment of training and educational

programs serves three primary objectives: raising the quality of the program, validating the necessity of the program, and determining the profitability of the course for providers. Moreover, various models have been utilized in the scholarly literature to assess training and education initiatives. Nonetheless, the existing body of research in Nigeria lacks sufficient utilization of the Kirkpatrick model for the evaluation of Technical, Vocational Education, and Training (TVET) programs [9]. The Kirkpatrick model is well recognized as a prominent goal-oriented methodology for the analysis and assessment of training and educational programs. The evaluation encompasses a range of instructional approaches, encompassing both structured and unstructured methods, with the aim of gauging proficiency across four distinct dimensions: reaction, learning, behavior, and outcomes. The primary objective of the present study is to evaluate the Technical, Vocational, Education, and Training (TVET) curriculum implemented at the Federal Polytechnic in Ilaro, Nigeria. This evaluation will be conducted using the Kirkpatrick model, which serves as the assessment framework for the study. The selection of the Federal Polytechnic, Ilaro, Nigeria was based on its established reputation as one of the leading polytechnics in Nigeria. The objective of this assessment is to offer significant perspectives to the Nigerian government and TVET institutions regarding strategies for enhancing the growth of TVET in the country, with a particular focus on socioeconomic progress and sustainable development.

Literature Review

The global recognition of TVET stems from its ability to provide individuals with the essential practical skills required for success in the professional sphere [3]. TVET encompasses the educational components that encompass not only general education but also the exploration of technologies and associated sciences. Additionally, it involves the development of practical skills, attitudes, understandings, and knowledge about occupations across diverse sectors of economic and social domains [10]. The definition of TVET, as endorsed by UNESCO [5], encompasses the integration of education, training, and skills enhancement about a diverse array of occupational domains, encompassing production, services, and sustainable livelihoods. TVET is an ongoing educational system that can be implemented across several levels of education. Typically, vocational education is regarded as being situated within the postsecondary level of education, as its primary objective is to cultivate the practical skills and occupational knowledge of its participants.

Ref. [11] posit that TVET encompasses both technical and vocational education, offering individuals the chance to gain and enhance their skills, competence, and overall productivity within the labor field. Technical education offers a comprehensive understanding of technical concepts, enabling individuals to pursue careers at levels below a bachelor's degree [12],[13]. Ref. [14],[15] viewed TVET as a comprehensive term describing aspects of

educational processes involving the study of technologies and sciences-related knowledge and occupational training tailored towards various sectors of social and economic life.

Some of the goals of TVET are to meet the needs for skilled manpower in a country as well as to support the state of the economy of individuals and nations [1]. Therefore, TVET does not only equip participants with vocational and technical skills but also with a broad range of knowledge, attitudes, and skills that are meaningful and important in one's work life [1]. TVET is therefore an important option for young people to acquire skills that will enable them to get employed and contribute to the economic development of Nigeria [16]. These definitions of TVET above show the importance of the program in ensuring a production-oriented economy, especially in Nigeria.

Ref. [17] applied the Kirkpatrick model to evaluating training programs in Nigerian polytechnics. The findings revealed that the model helps to ensure that students acquire the right skills to boost efficient and effective skilled and semi-skilled technical manpower that is needed in various industries. In the study carried out by Ref. [9], TVET processes were evaluated among key stakeholders in the education and business industries. The findings which were guided by the Kirkpatrick evaluation model revealed that the majority of the stakeholders were happy with the objectives of TVET as well as its provision of skills needed in the industries. However, some challenges were also enumerated.

Ref. [18] also evaluated learning programs in vocational education based on the four levels of the Kirkpatrick evaluation model. The results showed that the learning activities were effectively and properly conducted using this model. Ref. [1] pointed out that various factors such as inadequate TVET facilities, poor teaching methods, poor student assessments, and inadequate funding of TVET programs by the government on the side of the students, schools, and government are responsible for ineffective TVET programs in Nigeria tertiary institutions. On the other hand, Ref. [19] investigate the challenges for effective TVET using the factor analysis approach. The study through a questionnaire administered sought the opinions of the lecturers and supervisors and made the findings that ineffective policy and inadequate funding are the main challenges of TVET.

Ref. [20] also examined some critical issues that affect the quality of learning outcomes in Nigeria TVET such as inadequate facilities, inadequate funding, and ineffective utilization. Other challenges identified by Ref. [21] are inadequate qualified staff, inadequate funding by the government and poor remuneration of staff are some factors affecting the effective implementation of TV ET in Nigeria. It is based on these that the study evaluates the TVET in the Federal Polytechnic of Ilaro with the application of the Kirkpatrick model using the four levels of evaluation.

Kirkpatrick's model was proposed by Donald Kirkpatrick in 1959. This model is one of the most widely used models to evaluate training and education because of its high validity and reliability. The model evaluates based on four levels namely; behavior, reactions, learning, and result or impact [22]. The behavior level helps to know the changes that occur in the behaviors of the participants (students) as a result of the training program in the environment. It measures how the students apply what they have learned during the TVET to their job. This is the degree to which students apply the TVET with effect on their behavior which can be observed after several months of training depending on the situation.

The reaction level is the level of feelings and satisfaction of the participants about the training program. It assesses how the participants engaged, contributed, and responded to the facilitators to know how well the training program is being perceived. It is the degree to which the student participating find the training favorable, suitable, relevant, and engaging to their jobs. This evaluates how the students feel and react to the TVET experiences [22]. To measure this behavior level, inputs that the students have received over the months from TVET in the Federal Polytechnic of Ilaro are examined.

The learning level evaluates the level of skills, knowledge, and values that are acquired by the participants from the training program. The learning level measures what the participant feels he/she will be able to do, how certain they are, and how motivated they are to perform it. This evaluates the extent to which students acquire the knowledge, skills, ability, confidence, attitudes, and commitment. This is used to measure the increase in intellectual capabilities or knowledge acquired from TVET programs [22]. The outcome or result level is the achievement of the target outcome due to the training accountability and support given. This is the effect of the improved performance of the training on the business environment.

Kirkpatrick has several advantages, as it has been applied by many scholars who identified that the main strength of the model lies in its simple language in dealing with many outcomes and how those outcomes can be obtained. The model also focuses on the outcomes of the behaviors of the participants in the training [23],[24]. The model has been applied by different authors in various aspects [25] such as in leadership development training programs [26]; training courses [27]; an online group work approach [28]; on writing course [29]; on curriculum intervention [24]; on institutional approach [30]; on training program [31]; on research [32]; on health information management courses [33]; and on teacher training program [34].

With all these above identified, it can be inferred that the Kirkpatrick model has offered a great contribution to the theory of evaluation and practice. Nevertheless, it also has its limitations as it has been criticized by some scholars over the years. According to Ref. [35], the model is not suitable for the business world and can only be limited to higher education and

training because the model is tiered and the levels are structured in an increasing order of importance which professionals tend to disregard the lower levels of the model and address the higher level ones. This was supported by the submission of Ref. [36] that learning in the multifarious environments of higher education can be without any limitations. It is based on this fact that this model was applied to this study as it is seen as the most applicable model in evaluating TVET in the Federal Polytechnic of Ilaro, Nigeria.

Although Ref. [36] submission that the application of the model in higher education has not been paid much attention Ref. [37] pointed out that even in higher education where this theory is applied, there are tendencies to restrict evaluation from getting to the lower levels of the model. According to Ref. [33], the model was oversimplified as it did not take into consideration the contextual factors within the program. Ref. [38] observed that the model does not explore multi-dimensional outcomes that can be ascertained but rather focuses on the intended outcomes only and disregards the unintended outcomes. Despite criticisms, the Kirkpatrick model has been largely accepted as one of the best Goal-based models for evaluating training and educational programs.

Material and Methods

The study used a descriptive research design, with a questionnaire distributed to a representative sample of respondents. The study population includes 14,290 students from the Federal Polytechnic in Ilaro, Ogun State, Nigeria. A multistage sampling approach was used in the study. The first stage is to have a 375 sample size for questionnaire administration purposes. The second stage entails applying to fifty percent of the faculty/schools at the institution to select three faculty for the study. The faculty considered for this study are Management, Engineering, and Pure & Applied Sciences. The third stage involves selecting respondents from the finalist classes (ND 2 and HND 2) at the selected faculty in the Federal Polytechnic Ilaro in Ogun State, Nigeria. The study made use of both primary and secondary data sources. Primary data comes from the administration of questionnaires, whereas secondary sources include magazines, Internet-based resources, historical papers, and official publications. Descriptive statistics, such as frequency distribution tables and percentages, as well as inferential statistics, such as linear regression, will be used to evaluate the collected data.

Results and Discussion

A. Participant Response

Table 1 summarises the data gathered about trainees' perceptions and attitudes towards technical vocational education and training at the Federal Polytechnic, Ilaro in Ogun State, Nigeria. According to the findings, 220 participants, or 60.4% of the total respondents, agreed

with the clarity and precision of the TVET program's objectives. In contrast, 144 participants, or 39.6% of all responders, voiced dissatisfaction. The previously indicated variable is ranked fourth, with a mean value of 2.81. Furthermore, it was shown that 219 people, or 60.2% of the total sampled respondents, agreed on the teachers' high level of qualification and preparedness. In contrast, 145 respondents, or 39.8% of the total sampled respondents, disagreed with this assertion. The variable under consideration is ranked sixth, with a mean value of 2.80.

Table 1. Responses on the Trainee's Reaction Toward TVET Programme

S/N	Questions	Agreed		Disagreed		Total		Mean Value
		Freq.	%	Freq.	%	Freq.	%	
1	The TVET program objectives were clear and specific	220	60.4	144	39.6	**364**	**100**	2.81 (4th)
2	The instructors were well-qualified and prepared	219	60.2	145	39.8	**364**	**100**	2.80 (5th)
3	The amount of time scheduled was sufficient	183	50.2	181	49.8	**364**	**100**	2.60 (6th)
4	The method of training used was suitable	328	90.1	36	9.9	**364**	**100**	3.40 (1st)
5	The schedule of the program was suitable	291	79.9	73	20.1	**364**	**100**	3.20 (2nd)
6	There is adequate practical know-how in the TVET program	219	60.2	145	39.8	**364**	**100**	2.90 (3rd)
		AVERAGE MEAN VALUE ON REACTION						**2.95**

Source: Fieldwork, 2022

Similarly, out of the total number of respondents questioned, 183 people (50.2%) agreed that the allotted time for the TVET curriculum was adequate. In contrast, 181 respondents, or 49.8% of the total sample, voiced disagreement. With an average value of 2.60, the variable came in sixth position. A total of 328 respondents, or 90.1% of the sampled respondents, agreed that the training approach used for the TVET curriculum was appropriate. In contrast, 36 respondents, or 9.9% of those polled, voiced dissatisfaction. With a mean value of 3.40, the variable in question has obtained the highest rank.

A total of 291 respondents, or 79.9% of the sampled respondents, agreed that the TVET program schedule was appropriate. In contrast, 73 respondents, or 20.1% of those polled, voiced dissatisfaction. The variable in question is ranked second, with a mean value of 3.20. Furthermore, it was shown that 219 persons, or 60.2% of the total selected respondents, agreed with the presence of appropriate practical knowledge in the TVET curriculum. In contrast, 145 respondents, or 39.8% of the total sample, disagreed with this statement. The variable under consideration is ranked third, with a mean value of 2.90.

Table 2 presents the responses of students enrolled at Federal Polytechnic, Ilaro, located in Ogun State, Nigeria, regarding their experiences with technical vocational education and training. The findings of the study indicate that a majority of the sampled respondents, namely 255 individuals or 70.0% of the total, agreed with the notion that the TVET curriculum

effectively imparts new skills, information, and attitudes. Conversely, a smaller proportion of respondents, specifically 109 individuals or 30.0%, expressed disagreement with this statement. With an average value of 3.00, this variable is ranked fourth. Moreover, a total of 220 participants, constituting 60.4% of the entire sample, agreed on the program's ability to enhance work or task efficiency. Conversely, 144 respondents, accounting for 39.6% of the overall sample, expressed disagreement. The variable in question possesses a mean value of 2.81, placing it in the fifth position.

Table 2. Result of the TVET Learning of Programme Objective

S/N	Questions	Agreed		Disagreed		Total		Mean
		Freq.	%	Freq.	%	Freq.	%	Value
1	There are new skills, knowledge, and attitudes from the TVET program	255	70.0	109	30.0	**364**	**100**	3.00 (4th)
2	The program increased the effectiveness in accomplishing work or jobs	220	60.4	144	39.6	**364**	**100**	2.81 (5th)
3	TVET program aims at understanding the learner's group of ideologies, instruction, knowledge, and skill	292	80.2	72	19.8	**364**	**100**	3.41 (1st)
4	TVET program produces graduates with special professionalism and innovation	256	70.3	108	29.7	**364**	**100**	3.11 (2nd)
5	TVET program equipped intending graduates with the technology necessary for self-employment	256	70.3	108	29.7	**364**	**100**	3.11 (2nd)
		AVERAGE MEAN VALUE ON LEARNING						**3.09**

Source: Fieldwork, 2022

In a similar vein, it was found that 292 participants, constituting 80.2% of the entire sample, concurred with the notion that the objective of a TVET course is to facilitate the understanding of the learner's collective set of values, pedagogy, knowledge, and skills. Conversely, 72 respondents, accounting for 19.8% of the total sample, expressed disagreement with this proposition. At the time point of 3.41, this particular variable has the greatest average value. According to the findings of the survey, a significant majority of the respondents, specifically 70.3%, expressed their belief that the TVET program effectively cultivates graduates who possess exceptional levels of professionalism and originality. Conversely, a smaller proportion of the participants, accounting for 29.7%, held a differing viewpoint on this matter. The variable in question is ranked second based on its mean value of 3.11. In the study, a total of 256 respondents, accounting for 70.3% of the sampled respondents, agreed with the TVET program's provision of essential technologies for self-employment. Conversely, 108 respondents, constituting 29.7% of the sample, expressed disagreement with this notion. The variable in question is listed as the second highest, with an average value of 3.11.

Table 3 shows trainee replies to questions on their behavior after completing technical vocational education and training at the Federal Polytechnic, Ilaro, Ogun State, Nigeria. According to the findings, 255 respondents, or 70.0% of the total sampled respondents, agreed

that the TVET program had a beneficial impact on relationships with coworkers, whereas 109 respondents, or 30.0% of the total selected respondents, disagreed. This variable ranks fifth in terms of mean value (3.00). Furthermore, 256 respondents, or 70.3% of the total sampled respondents, believed that TVET would contribute to graduate growth in the future, whereas 108 respondents, or 29.7%, disagreed. This variable ranks third in terms of mean value (3.01).

Table 3. Responses on the Trainee's Behaviour after TVET Programme

S/N	Questions	Agreed		Disagreed		Total		Mean
		Freq.	%	Freq.	%	Freq.	%	Value
1	TVET program had a positive influence on my relationship with a colleague	255	70.0	109	30.0	**364**	**100**	3.00 (5th)
2	TVET program will contribute to graduate development in the future	256	70.3	108	29.7	**364**	**100**	3.01 (3rd)
3	TVET program has changed the behavior of students from job seekers to job creators	255	70.0	109	30.0	**364**	**100**	3.01 (3rd)
4	TVET program changes the orientation of trainees on business concept creation and proposal writing	291	79.9	73	20.1	**364**	**100**	3.30 (1st)
5	TVET program will enhance intending graduate performance on their job/work	291	79.9	73	20.1	**364**	**100**	3.10 (2nd)
		AVERAGE MEAN VALUE ON BEHAVIOUR						**3.08**

Source: Fieldwork, 2022

Similarly, 255 respondents, or 70.0% of those polled, agreed that the TVET program had turned students from job searchers to job creators, while 109 respondents, or 30.0% of those polled, disagreed. With an average value of 3.01, this variable ranks third. 291 respondents, or 79.9% of the total sampled respondents, agreed that the TVET program changes trainees' perspectives on business concept development and proposal writing, while 73 respondents, or 20.1% of the total sampled respondents, disagreed. At 3.30, this variable has the highest mean value. Finally, 291 respondents, or 79.9% of the total sampled respondents, agreed that the TVET program would increase the job/work performance of intending graduates, whereas 73 respondents, or 20.1%, disagreed. This variable is ranked second with a mean value of 3.10. The results of technical vocational education and training (TVET) on trainees at the Federal Polytechnic, Ilaro in Ogun State, Nigeria, are presented in Table 4.

Table 4. Responses on the Result of the TVET Programme on Trainee

S/N	Questions	Agreed		Disagreed		Total		Mean
		Freq.	%	Freq.	%	Freq.	%	Value
1	TVET program has resulted in potential graduates setting up a personal business while in school	132	36.2	232	63.8	**364**	**100**	2.09 (4th)
2	TVET program has helped graduate students in quality business proposal writing	99	27.2	265	72.8	**364**	**100**	2.00 (5th)
3	TVET program has changed graduating students from potential job seekers to job creators	198	54.4	166	45.6	**364**	**100**	2.73 (1st)

S/N	Questions	Agreed		Disagreed		Total		Mean
		Freq.	%	Freq.	%	Freq.	%	Value
4	TVET program has changed the graduating set orientation of life after graduation	165	45.3	199	54.7	**364**	**100**	2.64 (2nd)
5	TVET program has resulted in a reduction in youth unemployment	132	36.2	232	63.8	**364**	**100**	2.27 (3rd)
		AVERAGE MEAN VALUE ON RESULT						**2.35**

Source: Fieldwork, 2022

According to the data, 132 participants, or 36.2% of the total sampled, agreed with the premise that the TVET curriculum has resulted in prospective graduates creating their firms while still in school. In contrast, 232 individuals, or 63.8% of the total sample, disagreed with this viewpoint. The variable under consideration is ranked fourth, with a mean value of 2.09. Furthermore, it was discovered that 99 persons, representing 27.2% of the total sampled respondents, agreed with the notion that the TVET course has been effective in developing the skills of graduating students in the area of business proposal writing. In contrast, 265 respondents, or 72.8% of the total number of respondents, disagreed with this assertion. With an average value of 2.00, the variable in question is ranked fifth in the world.

Similarly, 198 respondents, or 54.4% of the studied participants, agreed that the TVET program has turned graduating students from being job seekers to employment producers. In contrast, 166 respondents, or 45.6% of the total selected participants, disagreed with this viewpoint. With an average value of 2.73, the aforementioned variable ranks first. A total of 165 respondents, accounting for 45.3% of the total sampled respondents, agreed that the TVET program had altered the graduating cohort's post-graduation outlook. In contrast, 199 respondents, or 54.7% of the total sampled respondents, disagreed with this viewpoint. With an average value of 2.64, the variable in question is ranked as the second highest. Finally, 132 respondents, or 36.2% of the studied population, agreed that the TVET program has contributed to a drop in youth unemployment. In contrast, 232 respondents, representing 63.8% of the sampled population, disagreed with this viewpoint. The previously indicated variable is ranked third, with a mean value of 2.27.

B. Regression Analysis on the Evaluation of TVET Programmes

This section examines the relationship between the Four levels of Behaviour, Reactions, Learning, and Outcome/Result identified by the Kirkpatrick model to evaluate the education and training program, which is adopted to evaluate the TVET program in the Federal Polytechnic, Ilaro, Ogun State, using multiple linear regression analysis. In this analysis, Behaviour, Learning, and Reaction are separate independent variables to check their effect on the dependent variable (Outcome/Result). The tests were conducted at a 0.05 level of significance.

The result of the analysis shows that the Reaction has a coefficient of 0.042 and a P-value of 0.658, which indicates that the variable has an insignificant effect on the outcome or result of the TVET program. Also, the analysis revealed that Learning has a coefficient of 0.022 and a P-value of 0.792, which indicates that Learning has no significant effect on the Outcome or Result of the TVET program. In the same vein, the analysis of Behaviour shows a coefficient of 0.000 and a P-value of 0.996, which indicates that Behaviour has no significant influence on the Outcome of the TVET program. Overall, the regression analysis produced an Adjusted R-Square of -0.005, F Statistics of 0.363, and a significant value of 0.780, which indicate that Learning, Behaviour, and Reaction did not influence the Outcome or Result of the TVET program. Based on the assumption of the Kirkpatrick model, the outcome or result is the improved performance of the trainee in the business environment due to changes in their behavior, reaction to the relevance of the training, and skills or knowledge learned. However, the result of the analysis revealed that despite changes in behavior, skill learned and the reaction of the trainee to its relevance, the expected outcome in the business environment from those trained cannot be ascertained. The findings predict that there are other variables, not considered by this model and this study, affecting the expected outcome of the TVET program in the Federal Polytechnic, Ilaro, Nigeria.

Conclusion

The research findings suggested that the reaction, learning, and behavior of TVET program participants were judged satisfactory, as most respondents agreed with the variables used to assess these three dimensions. However, the results showed no obvious improvement in the trainees' quality of life following the completion of the TVET program. This observation indicates that, in addition to the policy objectives or curriculum, there are additional elements that impede the efficacy of the TVET program (response), the acquisition of skills, information, and attitudes from the TVET program (learning), and the impact of the TVET program on trainees' behavior (behavior). Extraneous variables that are not considered or included in the Kirkpatrick model's development, specifically those of an environmental nature (such as political, economic, social, technological, and legal factors), must be investigated for their impact on the outcomes of the TVET program at the Federal Polytechnic Ilaro, Ogun State, Nigeria.

Recommendation

The research recommends that:

- Management strengthens their areas of strength in their TVET programs to improve the institution's performance and global ranking in Africa and globally.

- The government's supply of infrastructure is critical in assisting the creation and development of young firms that arise from TVET programs in Nigeria.
- It is proposed that the government increase its financial allocation to education, with a special emphasis on TVET, to reduce the nation's present unemployment rate.
- The government should consider providing subsidies, grants, and tax breaks to graduates of TVET programs who demonstrate a willingness to start small businesses.
- To ensure a continuous and high level of performance in TVET in Nigeria, there is a need for ongoing training of both academic and non-academic employees.

Conflict of Interest

The authors declare that there is no conflict of interest.

References

[1] Ayonmike, C. S., Okwelle, P. C., & Okeke, B. C. (2015). Towards Quality Technical Vocational Education and Training (Tvet) Programmes in Nigeria: Challenges and Improvement Strategies. *Journal of Education and Learning*, *4*(1), 25-34.
[2] Fatma, A. (2017). *Factors Influencing Life Skills Training in Technical and Vocational Education and Training (TVET) Institutions in Kenya. The Case of National Youth Service-institute of Business Studies, Nairobi County, Kenya* (Doctoral dissertation, University of Nairobi).
[3] Oviawe, J. I. (2018). Revamping technical vocational education and training through public-private partnerships for skill development. *Makerere Journal of Higher Education*, *10*(1), 73-91.
[4] Ali Asadullah, M. (2019). Quadratic indirect effect of national TVET expenditure on economic growth through social inclusion indicators. *SAGE Open*, *9*(1), 2158244019830557.
[5] UNESCO,(2015). *Vocational & Technical Society Revised Recommendation Education for a Strong & Dynamic Concerning Technical & Vocational Education*. Korea.
[6] Kanwar, A., Balasubramanian, K., & Carr, A. (2019). Changing the TVET paradigm: new models for lifelong learning. *International Journal of Training Research*, *17*(sup1), 54-68.
[7] Akanbi, G. O. (2017). Prospects for technical and vocational education and training (TVET) in Nigeria: Bridging the gap between policy document and implementation. *International Education Journal: Comparative Perspectives*, *16*(2), 1-15.
[8] Adesina, A. (2022). *40% of Nigerian youths jobless; angry, restless*. Availabe on: www.vanguardngr.com. Accessed on March 1, 2022.
[9] Hagos Baraki, A., & van Kemenade, E. (2013). Effectiveness of Technical and Vocational Education and Training (TVET) Insights from Ethiopia's reform. *The TQM Journal*, *25*(5), 492-506.
[10] Federal Republic of Nigeria. (2013). *National policy on education Lagos: NEDRC Press*. Merriam-Webster Dictionary.
[11] Nwosu, J. C., & Micah, E. M. (2017). Technical and vocational education and training as a tool for national sustainable development in Nigeria. *The International Journal of Social Sciences and Humanities Invention*, *4*(9), 3983-3988.
[12] Okoye, R., & Arimonu, M. O. (2016). Technical and vocational education in Nigeria: Issues, challenges and a way forward. *Journal of Education and Practice*, *7*(3), 113-118.
[13] Opoko, A. P., Badmus, F. O., Abiola, I. T., Odizia, C. I., Oluwole, O. O., Pamilerin, D. E., ... & Otusemade, T. O. (2018). The role of technical and vocational education and training (TVET) in nation building: A review of the Nigerian case. *International Journal of Mechanical Engineering and Technology*, *9*(13), 1564-1571.
[14] Makinde, W. A., & Rafiu, K. T. (2020, November). Teaching, Vocational Education and Training (TVET) and Sustainable Development in Nigeria: A Pragmatic Discourse. In *A paper presented at the 2nd International Conference of the Federal Polytechnic, Ilaro held between 10th and 11th November*.
[15] Makinde, W. A & Bamiro, T. O. (2023). Service quality of Teaching, Vocational Education and Training (TVET) and Student's satisfaction in Nigeria. *Journal of Pedagogy & Education Science, 2*(1), 10-25.

[16] Makinde, W., & Bamiro, T. O. (2022). Service Quality of Teaching Vocational Education And Training (TVET) And Students Performance In The Federal Polytechnic Ilaro, Nigeria. *International Journal of Entrepreneurship and Business Management*, *1*(2), 116-127.
[17] Tugwell, O. O., & Isaac, C. N. (2022). Theoretical models for evaluating engineering technology programmes in polytechnics in Nigeria. *GSC Advanced Engineering and Technology*, *3*(2), 052-059.
[18] Dewi, L. R., & Kartowagiran, B. (2018). An evaluation of internship program by using Kirkpatrick evaluation model. *REID (Research and Evaluation in Education)*, *4*(2), 155-163.
[19] Haruna, R., & Kamin, Y. B. (2019). Factor Analysis of the Challenges and Strategies for Effective Work-Based Learning in Nigerian Technical and Vocational Education. *Jurnal Pendidikan Teknologi dan Kejuruan, 25*(1), 21-30.
[20] Idjawe, E. E. (2020). Critical issues that impedes the quality of learning outcomes in technical vocational education and training (TVET) in Nigeria. *Vocational and Technical Education Journal*, *2*(1), 130-138.
[21] Okwelle, P. C., Deebom, M. T., Harcourt, P., & Okwelle, P. C. (2017). Technical vocational education and training as a tool for sustainable empowerment of youths in Niger Delta, Nigeria. *International Journal of Innovative Social & Science Education Research*, *5*(1), 29-38.
[22] Kirkpatrick, D. L.,& Kirkpatrick, J. D. (2006). *Evaluating training programs: The four Levels*(3rd ed.). San Francisco, CA: Berrett-Koehler Publishers.
[23] Bates, R. (2004). A critical analysis of evaluation practice: the Kirkpatrick model and the principle of beneficence. *Evaluation and program planning*, *27*(3), 341-347.
[24] Paull, M., Whitsed, C.,& Girardi, A. (2016). Applying the Kirkpatrick model: Evaluating an Interaction for Learning Framework curriculum intervention. *Issues in Educational Research, 26*(3), 490-502. https://www.iier.org.au/iier26/paull.pdf
[25] Saks, A. M. & Haccoun, R. R. (2010). *Managing performance through training and development*. Toronto: Nelson.
[26] Miller, B. J. (2018). Utilizing the Kirkpatrick model to evaluate a collegiate high-impact Leadership development program. *Master's thesis*. Texas University, College Station, Texas. https://oaktrust.library.tamu.edu
[27] Farjad, S. (2012). The Evaluation Effectiveness of training courses in University by Kirkpatrick Model (case study: Islamshahr university). *Procedia-Social and Behavioral Sciences*, *46*, 2837-2841.
[28] Baskin, C. (2001). Using Kirkpatrick's four-level-evaluation model to explore the Principle of beneficence. *Evaluation and Program Planning, 27*, 341-347.
[29] Aryadoust, V. (2017). Adapting Levels 1 and 2 of Kirkpatrick's model of training evaluation To examine the effectiveness of a tertiary-level writing course. *Pedagogies: An International Journal, 12*(2), 151-179. https://doi.org/10.1080/1554480X.2016.1242426
[30] Quintas, C., Fernandes Silva, I., & Tiexiera, A. (2017). Assessing an eLearning and bLearning Model - Astudy of perceived satisfaction. *International Journal of Information and Education Technology, 7*(4), 265-268.
[31] Masood, R. Q., & Usmani, M. A. W. (2015). A study for program evaluation through Kirkpatrick's model. *Khyber Medical University Journal*, *7*(2), 76-80.
[32] Abdulghani, H. M., Shaik, S. A., Khamis, N., Al-Drees, A. A., Irshad, M., Khalil, M. S. ... & Isnani, A. (2014). Research methodology workshops evaluation using Kirkpatrick's model: translating theory into practice. *Medical Teacher, 36*(1), 24-29.
[33] Rouse, D. N. (2011). Employing Kirkpatrick's evaluation framework to determine the effectiveness of health information management courses and programs. *Perspectives in health information management*, *8*(Spring). https://www.ncbi.nlm.nih.gov/pubmed/21464860
[34] Şahin, V. (2006). Evaluation of the in-service teacher training program" The Certificate for Teachers of English" at the Middle East Technical University School of Foreign Languages. https://etd.lib.metu.edu.tr/upload/12607752/index.pdf
[35] Alliger, G. M.,& Janak, E. A. (1989). Kirkpatrick's levels of training criteria: Thirty years later. *Personnel Psychology, 42*, 331-342.
[36] Lambert, N.(2011). Ban happy sheets! -Understanding and using evaluation. *Nurse Education Today, 32*(1), 14. https://doi.org/10.1016/j.nedt.2011.05.020
[37] Steele, L. M., Mulhearn, T. J., Medeiros, K. E., Watts, L. L., Connelly, S., & Mumford, M. D. (2016). How do we know what works? A review and critique of current practices in ethics training evaluation. *Accountability in research*, *23*(6), 319-350. http://dx.doi.org/10.1080/08989621.2016.1186547
[38] Yardley, S., & Dornan, T. (2012). Kirkpatrick's levels and education 'evidence'. *Medical education*, *46*(1), 97-106. http://dx.doi.org/10.1111/j.13652923.2011.04076.x

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