

The Philosophy of Vocational Education in the Face of 4th Industrial Revolution: A Namibian National Training Authority Perspective

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Abstract: In as much as VTC graduates should eventually become employers upon completion, the trainers of the trainees should ensure that the trainees are abreast with the paradigms shifts in the world called the 4IR to align their programmes offered to the new ways of doing things. For this promotion to happen, from the onset of the course, trainees should be equipped with necessary skills to navigate in the digital world and curb the digital divide so that they become digital natives. Despite this recognition, business proposal education and 4IR in the job market is not emphasised at every stage of vocational education and training system. This deficiency depletes the endeavours of aligning the TVET curriculum to the philosophy of the 4IR. This paper reviews the TVET curriculum under Office Administration from Rundu Vocational Training Centre and analysed the alignment of the course' content and what is demanded in the workforce. This study involved secondary data collected in Kavango East region of Namibia (Rundu vocational training centre). Specifically, the data were collected from one VTC under the course of Office Administration level 2. The data were collected through the documentary review using desktop research. The secondary data (the Office Administration Level 2 study guide) published in 2001 were derived and reviewed. In the first instance, each unit was reviewed to deduce conclusions whether the course descriptors and content align with the Fourth Industrial Revolution (4IR). Second, all the study guide's units were brought together in an analysis to see whether the overall units prepare trainees of Office Administration to conform with the current world trends. Data were then analysed using descriptive framework. The findings of the study suggest that the VET policy today is driven by the job market rather than the individual's needs and aspirations.

Keywords: Namibian National Training Authority; Fourth Industrial revolution; Curriculum; Vocational Education, TVET

I. INTRODUCTION

In as much as VTC graduates should eventually become employers upon completion, the trainers of the trainees should ensure that the trainees are abreast with the paradigms shifts in the world called the 4IR to align their programmes offered to the new ways of doing things. For this promotion to happen, from the onset of the course, trainees should be equipped with necessary skills to navigate in the digital world and curb the digital divide so that they become digital natives. Despite this recognition, business proposal education and 4IR in the job market is not emphasised at every stage of vocational

education and training system. This deficiency depletes the endeavours of aligning the TVET curriculum to the philosophy of the 4IR. This paper reviews the TVET curriculum under Office Administration from Rundu Vocational Training Centre and analysed the alignment of the course' content and what is demanded in the workforce.

The paper creates new ground by introducing the reader to the breadth of vocational education philosophy in light of the 4th industrial revolution. Namibia's basic education system has taken remarkable steps since its independence. The foundation of vocational-technical education is based on a philosophy which was mainly established for self-employment and self-reliance of the individual(s) who partake in it. Namibia's Vocational technical education was intended to orientate the students to work toward achieving Namibia's Vision 2030. Bock (2013) notes that one of the most essential aspects of Technical and Vocational Education and Training (TVET), is its orientation toward the world of work and the development of transferable skills to students. However, the current vocational education and training system in Namibia appears to be that students are not equipped with business proposal skills as part of the assessment tool to seek financial support or enter the workforce upon completion.

Namibia's economy grew steadily until 2015 when it faced a precipitous downturn due to economic fragility and reliance on low-productivity sectors (Spottl & Windelband, 2021). As a result, this negatively harmed economic stability among youth employment in Namibia. Thus equipping VTC students with business proposal skills whilst studying, it is a wise turning point to the right direction as it will enhance their ways of living and enable them to navigate through the competitive world.

The Namibian Government recognises the need to develop strategies to address this challenge. One such strategy is to improve the quality of Technical Vocational Education and Training (TVET) (Galguera, 2018, Julius & Amupanda, 2017). The strategy is needed as it plays an important role in the country's economic and social development agenda, as highlighted in the Fifth National Development Plan (NDP 5) and the Harambee Prosperity Plan (HPP) (Julius & Amupanda, 2017). Marked progress has been recorded over the last few

years in turning TVET into a demanded system. However, it appears that the curriculum still does not fully meet labour market demands and requires further and ongoing quality improvement and expansion. The paper aimed to explore and review the philosophy of vocational education in the face of the 4th Industrial revolution within the context of the Namibian National Training Authority (NTA). In addition, the paper sought to address the following research objectives: Firstly, to review the TVET curriculum's assessment needs as far as the job market and technological current trends are concerned. Lastly, to establish disquiet associated with job-driven training as opposed to current trends needs to be driven. The literature on TVET curriculum's assessment needs as far as the job market is concerned in the fourth industrial revolution is highlighted in the section that follows.

II. LITERATURE REVIEW

A. *The era of the Fourth Industrial Revolution*

There is an abundance of literature about the definition of fourth industrial revolution, authors such as (Lee, et al., 2018) defines the fourth industrial revolution to be boundaries between the physical, digital, and biological domains are being blurred by a combination of technologies that characterises the Fourth Industrial Revolution. While McPhee (2017) defines the 4th Industrial Revolution as the Internet of Things (IoT): data and services that will alter future manufacturing, logistics, and work processes. By incorporating new technologies like machine learning, embedded systems, and wireless connectivity, the Internet of Things has evolved beyond simple Internet-connected applications in recent years. Pauceanu (2020) describes industry 4.0 as the relationship between the physical, electronic, and biological spheres is shaped by a collection of technologies that make up the fourth industrial revolution. This study adopts the definition of McPhee (2017) this is because the study aimed at assessing the TVET curriculum and that of the job market to deduce whether or not it aligns with what the job market requires and what it offers and his definition highlights that industry 4.0 alters work processes. In other words, how things are done should be changed to what is being demanded, in this case is the TVET curriculum and what the job market demands from the TVET graduates.

While the Fourth Industrial Revolution has been developing since the start of the twenty-first century, according to the World Economic Forum. The ubiquitous and portable Internet, more affordable, more compact, and more powerful sensors, as well as artificial and machine learning, all contribute to this revolutionary development (Schwab, 2017). In the era of industry 4.0 employers awaits TVET graduates to meet the demand of the work force as most jobs have moved away from the use of manual systems to the use of technology which is viewed as faster than the manual way of doing things. As a consequence, job seekers are faced with challenges to ensure that they meet the needed skills for them to get employment. Additionally, given that this is a global problem, businesses are concerned about the lack of employability skills that entry-level

job seekers have already displayed (Teng et al., 2019). Despite the importance of employability, there are differences in how companies and higher education students view employability abilities (Ahmad & Pesch, 2017; Singh et al., 2017). This study's major objective is to review the TVET curriculum's assessment needs as far as the job market and technological current trends are concerned and to establish concerns associated with job-driven training as opposed to current trends needs to be driven.

B. *The significance of the fourth industrial revolution to TVET*

The speed at which the working world is changing requires TVET systems to adapt. Modern TVET systems must embrace a method of vocational didactics that may be used in all conceivable learning environments and business sectors. Three traditions serve as the foundation for TVET systems around the world: (i) skills development with an emphasis on practical application in the workplace; (ii) technical education, which is primarily theoretical and not very practical; and (iii) a combination of both approaches (Schröder, 2019). The third, also known as the dual-corporative TVET system with its numerous learning venues, integrates theory and practice to educate and prepare students for the needs of the modern labour market, personal growth, and lifelong learning. In addition to improving the overall competence or skill level of the worker, vocational training also enables flexible training throughout the lifespan. The aims of TVET and professional didactics should be congruent and related so that informal, non-formal, and formal learning can all be conceptually integrated to the same extent. This will enable permeability, recognition, and lifelong learning.

Minghat, et al. (2020) expound that the challenge for TVET instructors' careers is to consistently advance in the field of technical and vocational education and training (TVET) in order to retain their success. It is crucial to support teachers so they can improve student learning and instruction. Having the capacity to comprehend the talents needed by their job requirements is also crucial. In a larger sense, people who have received training through vocational learning procedures will be able to fill the skills gaps in the job market.

C. *Understanding the TVET curriculum in Namibia*

The mission of TVET in Namibia is to develop a skilled workforce in order to help Namibia to strive against rising levels of unemployment and help Namibia become a knowledge-based economy. TVET (Technical, Vocational Education and Training) refers to any type of education that focuses on helping students build the professional skills they will need when they enter the workforce (Shikalepo, 2019). The term "TVET" is also used to refer to the parts of the educational process that include, in addition to general education, the study of technologies and related sciences as well as the acquisition of practical skills, attitudes, and knowledge relevant to occupations in various spheres of economic and social life (UNESCO, 2002).

TVET's overarching goal is to improve people's

employability so they can contribute to their communities and society's overall sustainability. In addition to providing employees, TVET programmes also seek to create employers. TVET is the key to reducing poverty, enhancing everyone's quality of life, and fostering sustainable economic progress (UNEVOC-UNESCO, 2004).

More than 16 vocational training facilities, including both private and public facilities, are registered with Namibia's Training Authority, a legislative entity created by Act No. 1 of 2008, which is charged with governing technical and vocational education and training in Namibia. By 2030, Namibia wants to become an industrialised country that can compete with other economic powerhouses of the world, and these Centres generate the craftsmen it needs to do that. The only university institution tasked to date with training qualified vocational instructors, who will instruct students at the nation's many vocational training centres, is Namibia University of Science and Technology (NUST).

III. MATERIALS AND METHODS

This study involved secondary data collected in Kavango East region of Namibia (Rundu vocational training centre). Specifically, the data were collected from one VTC under the course of Office Administration level 2. The data were collected through the documentary review using desktop research. The secondary data (the Office Administration Level 2 study guide) published in 2001 were derived and reviewed. In the first instance, each unit was reviewed to deduce conclusions whether the course descriptors and content align with the Fourth Industrial Revolution (4IR). Second, all the study guide's units were brought together in an analysis to see whether the overall units prepare trainees of Office Administration to conform with the current world trends. Data were then analysed using descriptive framework. The descriptive framework was adopted because descriptive analysis characterises the world or a phenomenon identifying patterns in the data to answer questions about who, what, where, when, and to what extent (Loeb, et. al., 2017). In this case, this study aimed to unravel to what extent does the Office Administration course equip and ready trainees to the current trends of 4IR.

IV. FINDINGS AND DISCUSSION

The findings are presented according to the tools used to collect them.

The findings derived from this study may contribute to the existing body of knowledge and literature. Furthermore, the study revealed that the philosophical foundation of the Technical and Vocational Education and Training (TVET) curriculum is driven by the job market rather than the individual's needs and aspirations. As such, the training is not geared towards technological world current trends but rather the dictation of the job providers. The current curriculum for Office Administration Level 2 aligns with the job market of 2011 of using cheque books, completing receipts, deposit slips, completing orders and requisitions manually (Namibia

Training Authority, 2011). Which lacks behind with the current job market of financial sectors where online transactions are being used rather than cheques. Resultantly, the study exposed a wide gap of a stagnant current TVET curriculum with technological contemporary inclinations in other parts of the world such as Germany. Therefore, curriculum transformation should be imposed to avoid curriculum stagnation to create new jobs that could align with the 4IR.

Having analysed the curriculum of Office administration for level 2, it is safe to allude that Namibia Training Authority should ensure that their trainees are absorbed in the system without any rejections by projecting their curriculum towards a futuristic angle of reforming their curriculum to the current trends in the technological world, instead of satisfying the employer's needs, the curriculum should be developed in such a way that it satisfy the current trends in the world than what a certain employer need. For example, for the trainees in Office Administration should be taught how to use systems and applications to make requisitions, placing orders, deposit funds for the company, etc., not the manual way of doing things, because that is what the philosophy of the 4IR entails. Additionally, it appears to be that NTA developed their curriculum using the 2011 needs in the Office Administration trade and their trainees are still being trained using the 2011 needs curriculum which seems to be outdated content, because the world have evolved and what was the knowledge gap in the administration fraternity in 2011 is not what is needed now. For example, banks have requested that future employees under the trade of Office Administration in 2011 should know how to complete cheques, place in orders and make requisitions manually, deposit funds generated by the company by filling in a deposit slip, etc. but currently, the world have advanced in technology and cheques are no more being used, funds can now be deposited without stepping a foot in a physical bank as deposits can be done using the Automatic Teller Machines (ATMs), conduct online transactions such as e wallets, blue wallets, easy wallets or online banking systems and requisitions can be done using a software. With all these transformations, NTA should ensure that their curriculum in projected to cater for the ever-changing world so that their trainees are equipped with the necessary skills to navigate in this world of technological advancements.

To add, Namibia as a country is investing more in Green Hydrogen and sooner or later cars using Green Hydrogen will be imported from other countries to this country but our mechanics trained in VTCs are only equipped with the knowledge of operating and fixing cars that work on diesel and petrol transmissions which will automatically deem them obsolete to be absorbed in the job market. Moreover, it is observed that even carpenters still stick to the traditional way of designing furniture, which is of harvesting timber and make chairs and tables. In as much as we embrace their effort, there is a vast array of innovative ways which can be used to avoid the emission of carbon dioxide into the atmosphere which Namibia is against with and move to designing tables and chairs using glass and plastics towards a common goal.

V. CONCLUSIONS

The philosophical foundation of the Technical and Vocational Education and Training's (TVET) curriculum is driven by the job market rather than individual's needs and aspirations as dictated by the current technological demands. The study exposed a wide gap between a stagnant current TVET curriculum with technological contemporary inclinations in other parts of the world such as Germany. The training is not geared towards technological world current trends but rather the dictation of the job providers. Moreover, in order to close the competency gap with the major players in the fourth industrial revolution industry, Technical and Vocational Education and Training (TVET) institutions need to adjust the implementation method of their education and training based on science and technology by offering demand-driven courses. In conclusion, TVET institutions need to change the way they implement their science- and technology-based education and training by providing demand-driven courses.

VI. RECOMMENDATIONS

For an improved TVET curriculum in office administration to align with the 4IR, this paper made the following recommendations:

6.1. Recommendations for TVET institutions

Vocational Centres should make the 4IR education a part of their courses. This is because it will enable the trainees to align their way of thinking, innovations and perceptions on how to incorporate their intended trade with the current trends in the world for global competitiveness.

6.2. Recommendations for industries

Apprenticeship should be done on interval to ensure that the trainees are exposed to what they are to get in the workforce to avoid mismatch of competencies. This can be done by sending trainees to companies where their trade is practiced for them to emulate.

6.3. Recommendations for researchers

Tracer studies should be done after the trainees have graduated to answer questions such as; are all trainees absorbed in the job market? what challenges are they experiencing for those that are working? what could be the reason that some trainees are not absorbed in the workforce? What should be done to ensure that there is no rejection of trainees in the job market?

Further research is sought to include other trades and analyse whether or not 4IR philosophy is being implemented in the TVET programmes at VTCs.

ACKNOWLEDGMENT

The authors thank the almighty God for the favour as the paper was written.

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