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SKILLS DYNAMICS: PANACEA TO TVET PERFORMANCE IN THE CAPTAIN ELECHI AMADI POLYTECHNIC, PORT HARCOURT, RIVERS STATE

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Abstract: This study examines skills dynamics as the panacea to technical vocational education training in Captain Elechi Amadi Polytechnic. The purpose of this study was to establish the difference between skills dynamics and TVET performance at Captain Elechi Amadi Polytechnic. The study adopted an post-factor research design, which was considered appropriate for the study because the data collected were original and secondary data were obtained from the institution's admission enrolment record of female students for the period of three(3) years, i.e., 2021–2023, and the graduated students list . The departments used as the population of the study were Science Laboratory Technology, Agricultural Technology, Electrical/Electronic Engineering, Computer Science, and Building Technology, which comprised 1045 female students. The independent variable (Skills Dynamics) is represented by practical training/enlightenment, while the dependent variable (TVET Performance) is represented by female students' enrollment and female students' grade points. The study applied the t-test for an independent sample. The result of the findings revealed that, TVET in the CEAPOLY Chapter is yet to make a significant difference in the number of enrolment of female students and in their grade points. As the result revealed, there is no significant difference in both female student enrolment nor on the grade point at 0.05% level of significance afterher inauguration in march, 2020. The study therefore concluded that, TVET in CEAPOLY has not actually made much impact in the sensitizing of female students to increase in their female student enrollments into STEAM departments and improvement of the grade point respectively. The researchers therefore recommended, among others, that TEVT CEAPOLY should rise up and heat the grounding running with an intensive sensitization in specialized fields such as agricultural technology, electrical electronics engineering, science laboratory, and computer science to improve drastically and inculcate in females the spirit of self -reliance to face the curve ahead at their workplaces.

Keywords: Skill Dynamics, TVET Performance, Captain Elechi Amadi Polytechnics.

Introduction

A well-developed skill can make a person master a particular field. It can also be learned. Learning new skills helps in one's professional life. It can help organizations achieve their goals, employees gain confidence, and motivate them to work in progress. Reaching global skills capacities in terms of innovativeness and job complexity/sophistication requires dynamic skills.

Skill dynamics refers to the ability to go beyond theory and stay ahead of the curve.

Human Resource Director (2022) defines, skill dynamics as an approach that anticipates skills shifts as they occur rather than predicting the future and adapts to those shifts in an interactive course and in a corrective way.

Sam (2023) asserts that skill dynamic is being able to act organized. It is also called 'Dynamic skill theory'. It seeks to identify future organizational skills at an early stage so that the necessary talent, terms, and structure can be adequately developed in real time.

Technical Vocational Education and Training (TVET) is a fundamental element in the development balance of female equality in Africa; therefore, it needs to enhance its course contents with the requisite skill dynamic learning to be able to shift and adapt to the changing nature of work environment. It was inaugurated in Captain Elechi Amadi Polytechnic 20th march, 2020.

Employees are motivated to increase their performance because they possess the necessary skills to accomplish assigned tasks. These abilities to perform specified skills enable employees to enjoy job satisfaction and eliminate counterproductive behaviors. Skills dynamics learning will unlock female potential while preparing them to face the challenges ahead. Practical training and the self-education dimension are considered (independent variable) adequate for the topic in discourse. Performance is an action or process of conducting or accomplishing a task or function.

Skill dynamics (practical training/enlightenment) are very relevant for TVET performance, female student enrolment, and female student grade point at Captain Elechi Amadi Polytechnic, Port Harcourt, Rivers State. Hence, the investigation on the topic of skill dynamics panacea to TVET performance in Captain Elechi Amadi Polytechnic.

Statement of the Problem

Technical, vocational, educational, and training are aimed at increasing and advancing female participation in science, technology, engineering, and mathematics courses (STEM) in polytechnic institutions in Africa. Hence, the introduction of TVET as a body representative to reorient and provide career knowledge and skill base of focused education for the teeming youths to convert their strength into productive ventures, especially for females.

The general objective of polytechnic education is to provide technical and practical oriented training to meet manpower requirements for industries, agriculture, and commercial sectors for the socioeconomic development of the country.

The need for the available skills mix to be congruent with high technology innovation, modification, and sophistication is a concern.

Despite the efforts made by TVET in this regard, there is still skills disparity gap because of the changing nature of work. This is a problem. Thus, to fill the gap, this study was carried out.

Objectives of the Study

The core objective of this study is to determine the difference made by skill dynamics on TVET performance in CEAPOLY. Rivers State.

The sub-objectives include the following:

- To determine if there is any difference between practical training/enlightenment and female students' enrollment in CEAPOLY .Rivers State.
- To determine if practical training/enlightenment has any difference in female students' grade points in CEAPOLY Rivers State.

Hypothesis

The following hypotheses shall be tested in this study:

H_{01}: There was no significant difference between practical training/enlightenment and female students' enrollment in CEAPOLY, Rivers State.

H_{02}: Practical training/enlightenment does not have any significant difference with female students' grade points in CEAPOLY. Rivers State

Conceptualization of the concept:

This section is divided into conceptual and empirical reviews.

We are familiar with how quickly our world is changing due to rapid technological advancement and disruptions in the environment where business operates. The most present struggle is the constantly changing world for business operators. Expanding the requirements for necessary skills, digital and industrial advancement, and others demand employees to learn more skills to stay current and relevant. Skill dynamics learning will help keep skills up to date with market demands and changes in the environment.

Skill dynamics is an approach to enhance anticipated skill shifts as they occur rather than predicting the future to adapt to shifts in interactive courses in a corrective manner. Human Resource director (2022) opines that organizations should feel this impact through the outflow of graduated students of various institutions, especially females.

Psychology Dictionary Organization, defines skill dynamics as being able to act organized. Such skills, when well-articulated could be used to organize and develop work projects to update practical teaching at all levels of the state's educational system.

According to Garter (2023), the number of skills needed to perform a single task has increased by approximately 10% per year, and 33% of employees' skills are rendered obsolete every year. The implications are that the landscape presents organizations and even institutions with the challenges of adapting quickly to skill dynamics to remain relevant. For instance, here in Rivers State, the introduction of cashless society encouraged many bush market traders in our local villages to open bank accounts so that they could operate their businesses effectively. This means that educating and training students on digitalization in the institutions helps to increase their competitiveness at the same time expanding the horizon of enrollment of females into STEM departments.

Approaches to Skills Management:

Organizations can adapt to any of these different types: reactive, predictive, and dynamic.

Reactive Approach:

Organizations wait until a skill becomes relevant before setting up a learning or development plan to work toward reskilling employees. This approach may only respond adequately to existing need but slow to solving the problem at hand. Studies show that employees end up using about 54% of the skills learned in one session.

Predicative Approach:

Organizations have already made plans ahead and created a designated team of experts to be in charge to foresee a need or skill gap should they occur. While the employees end up applying about 37% of the learnt skills.

Dynamic Approach:

Dynamic skills help keep skills up to date with market demands and change the workforce. This approach is always at the update stage and in real time optimal growth.

It will help organizations deliver the right training to employees at the right time. Studies have shown that the dynamic approach ends up applying about 75% of the new skills learned. According to Chikere and Okafore (2012), an employee is motivated to increase his productivity only on jobs in which he possesses the necessary skills. A person who does not possess the necessary skills to perform an assigned job may definitely derive little or no satisfaction from the job.

Dimension

Practical training: This means learning in working life and familiarizing yourself with the tasks in a real working environment.

The practical aspects of something involve real situations and events, rather than just ideas and theories.

The English Grammar Dictionary describes practical training as the process of learning the skills required for a particular job or activity.

Practical training helps students learn more effectively. It helps students with the ability to grasp information and do more than at hearing about it. Practical learning can also help structure and improve engagement and knowledge tension, similar to theoretical learning. Students learn easier and remember what they have learned by doing activities, especially for science courses that require testable facts rather than intuition. Olumide (2012) supported this view, that the educational sector today still has a lot of changes to make, especially in wealth creation, because it is still geared toward churning out job seekers. But with practical training, people can create wealth themselves and become self-employed.

Enlightenment: means creating awareness of issues that affect other concerned targets. It helps people show concern for others. Here at CEAPOLY, several enlightenment programs have been in place to create awareness of STEM since her inauguration in March 2020. Such as the National Workshop organized by WITED with the theme 'Creating sustainable technical and vocational education for the employment of young women in Nigeria.' During the lockdown period, the chapter organized its first webinar titled Impact of innovative technology on women in technical education and employment and recorded about 150 secondary school students. A lecture was also delivered by a WITED member, Dr. Gloria C. Okachi-Okereke, on the topic: Entrepreneurship The Future Assured. Followed by a practical section of training given by selected Business Administration and Management department students on bleach production for domestic and commercial purposes, WITED CEAPOLY Brochure (2022). All these are amongst the many other enlightenment programs embarked upon by WITED CEAPOLY to create awareness

Self-education: This is the act or process of educating oneself by one's own efforts, especially through reading and informal studying. Johnson (2023) in her channel TV presentation, on 1st May, "Entrepreneurs forum"

contend that intellectual curiosity is the natural desire to learn new things and understand the inner workings and take a deep drive into the subject that others find tiresome or burdening, which is self-education.

Ramson (2021) opined that credentials are no longer enough, and the need for self-education to move or progress to the level you can use to start your own self-adventure is very relevant.

The starting point could be hazardous, but with constant learning through self-teaching, you become reskilled to pursue projects on your own accord.

Olumide (2012) called self-education personal education, which he defines as knowing and developing one's gifts, talents, potentials, skill expertise, and uniqueness. Make sure you keep growing holistically on your own.

To support this view, Meduom (2020) asserted that self-education is the process of acquiring knowledge or skills without the aid of formal instruction. For instance, through gained experience alongside reading books or online tutorials, for example, one of my sons at Covenant University, Ota, learned the basics of editing images by himself. Self-education encourages one to learn effectively, learn at your own pace, and become happier, productive, and driven.

Despite the fear of automation performing the jobs of several persons at the same time, thereby reducing the number of employees required for employment, history shows that new technology also creates opportunities for new jobs that one can decide to take advantage of by creating a niche through self-education.

TVET Performance

Performance is the act or process of doing something, such as your job or task. It is also the execution of action.

Technical vocational education and training (TVET) has been identified as an effective body for improving socio-economic development in Africa through strategies for socio-economic development in government policies on education. The report by international organizations providing solutions to the challenges faced by African nations favored TEVET's aims and objectives (to educate and equip young men and women with the technical and professional skills needed for social economic development of the country). Makinde and Rafu (2020), TVET is also a technique for preparing people for dynamic skills in occupational engagements of functional values.

The United Nations Educational Scientific & Cultural Organization (UNESCO) (2021), identified TVET as a strategy for the development of sustainable societies and economies because it promotes social mobility through lifelong learning access, equity, and eradication of unemployment for sustainable development. The crusade and encouragement of the young people enrolment into (STEM) are commendable steps because it has also helped the females to increase participation in more complex duties at the workplace.

Conceptual framework

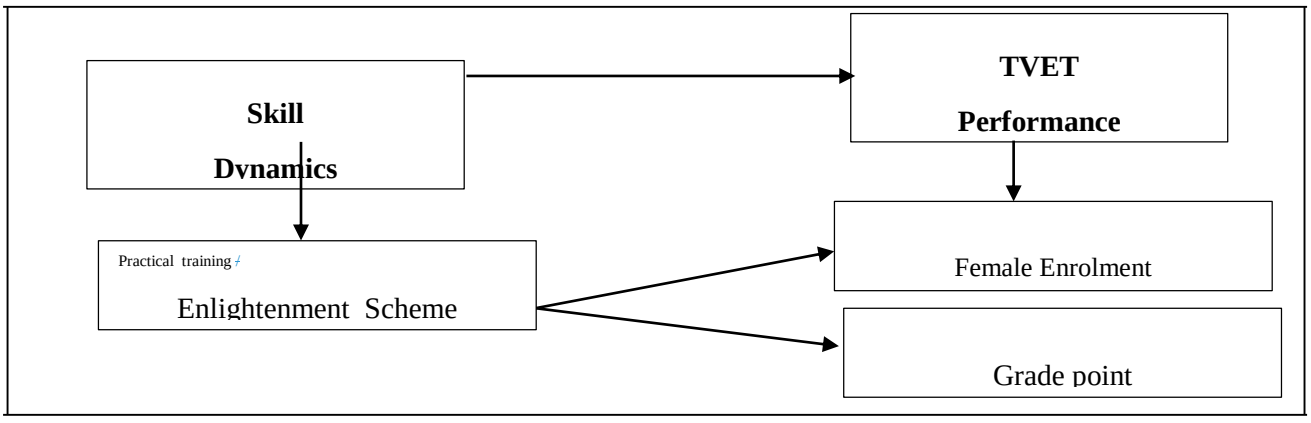

Fig. 1:
Conceptualization model of the holistic perspective of skill dynamics and TVET performance in Captain Elechi Amadi Polytechnic
Source: Researchers' Conceptualization 2023

Empirical Review

This section reviews, related empirical studies that have some relationship with this study. Batainech, Qablan, Belbase, Takriti, and Tairab (2022) conducted a study on gender disparity in the Science, Technology, Engineering, and– Mathematics (STEM) program at Jordanian universities, with the aim of identifying university students' preference in STEM courses and the average percentage of enrolment in the STEM field.

The sample of study was 16,134 both male and female students'. From the period of 2008-2018. The data analysis revealed a disparity in preference and percentage of male and female students enrolled in STEM courses. Male, students prefer to pursue degree programs in almost every engineering field, whereas female students prefer studies related to medical sciences and basic sciences. Therefore, the researcher concluded that the disparity in preference between male and female students was attributable to job hiring preferences. It also recommended that gender disparity should be addressed and that Jordanian women's interest in pursuing STEM education should be encouraged.

A study was also conducted in Nigeria by Agommuoh and Nkiruka (2020) on the strategies for promoting gender equality in STEM towards sustainable development.

A description survey design was used. A population of 67 secondary school science teachers, consisting of 39 males and 25 females, were randomly drawn from 4 secondary schools in Umuahia North Local Government Area of Abia State for this study.

Two research questions and one hypothesis were developed to guide the study. The data were analyzed with mean and chi-square statistics, and the results revealed that exposing women in STEM (Science teachers)to female STEM experts and peers, was another means of creating an informal STEM learning environment after school activities and promoting gender equality in STEM.

Furthermore, Oniel-ere, Efekemo, and Eni (2021) conducted a study on STEM enrolment patterns and factors influencing female secondary school students in Nigeria. Two public available datasets were used: JAMB enrollment of students in covenant university from 2010 to 2014. A survey of pre-university students in Ogun State to examine factors influencing career choice was also conducted and used in the study. The study revealed that males were more likely to be enrolled in STEM than females. It was also observed that female students were not confident in taking pre-university STEM subjects.

Therefore, recommended that junior secondary school girls should be oriented and guided to take up more technical subjects to encourage adequate representation across STEM disciplines.

Methodology

Ex post – facto research design was considered appropriate for the study because it involved the exploration of selected STEM departments of the institution. The fact that the data collected were original and without manipulation necessitated the need of the design The data collection method was purely the secondary data from the institution ICT enrolment and exams and records units from 2020 to 2023. The population of the study consists of the female students enrolment of selected STEM departments such as, Agricultural technology, Building Technology, Computer Science, Electrical Electronic Engineering and Science Laboratory Technology

respectively, which has a total number of 2,334 students out of which females are 1,045 and males are 1,239. Our focus is on female students enrolled in STEM, which forms the population of this study 1,045. Since the population was not very large, the researcher employed a purposive sampling method to select all populations as the sample. The statistical technique applied is the t-test for an independent sample. The model is given as

$$T = \frac{\bar{X}_1 - \bar{X}_2}{SP\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$SP = \sqrt{\frac{n_1(S_1)^2 + n_2(S_2)^2}{n_1 + n_2 - 2}}$$

where:

X_1 = Mean of female students before TVET Enlightenment/Practical Training

$\bar{X}_2$ = Mean of female students after TVET enlightenment/practical training

n_1 = Sample size before TVET enlightenment/practical training

n_2 = Sample size after TVET enlightenment/practical training

S_1 = Variance before TVET Enlightenment/Practical Training

S_2 = Variance after TVET Enlightenment/Practical Training

SP = Pool sample before and after TVET Enlightenment/Practical Training

Data Presentation and Analysis

The data used for the analysis are presented below:

Table 1. Students Enrolment and Grade Point in Different Departments in 2020 & 2021

S/NO	DEPARTMENTS	NO. FEMALE STUDENTS ENROLLMENT 2020	NO. FEMALE STUDENTS ENROLLMENT 2021	NO. OF GRADUATED FEMALE STUDENTS 2020	NO. OF GRADUATED FEMALE STUDENTS 2021
1	Statistics	8	7	3	3
2	Agricultural. Technology	13	26	31	10
3	Electrical and Electronic Engineering	06	10	20	5
4	Science Laboratory Technology	182	297	107	40
5	Computer Science	45	81	12	5

Source: Registry Department CEAPOLY, 2023

A priori expectation: A positive significant difference is expected in female students' enrolment and grade point after TVET scheme enlightenment at Captain Elechi Polytechnic

Test of the Hypotheses

Hypotheses were tested to answer the research questions. In all, two hypotheses were tested in this study.

Hypothesis one

Ho: The TVET enlightenment scheme has not made a significant difference in the number of female students enrolled in Captain Elechi Polytechnic

The result of the analysis is displayed on the basis of the data presented in Table 1 above.

Table 2 Results of TVET Enlightenment Scheme and Number of Female Students Enrolled in CEAPOLY

T-Test

Group Statistics

	PERF	N	Mean	Std. Deviation	Std. Error Mean
TVETENROL	1.00	5	84.20	122.624	54.839
	2.00	5	58.00	76.049	34.010

Independent Samples Test

		Levene's Test for the Equality of Variances		t-test for equality of means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% confidence interval of the difference	
									Lower	Upper
TVETENROL	Equal variances assumed	.465	.514	.406	8	.695	26.200	64.529	-122.605	175.005
	Equal variances not assumed			.406	6.680	.697	26.200	64.529	-127.880	180.280

Source: SPSS version 23 outputs

From table 2, Leven's test showed that 0.514 is more than 0.05 power of the test; therefore, equal variance is assumed and the condition of homogeneity is fulfilled. The probability of the t-statistic 0.695 is more than 0.05 power of the test. This means that TVET has not made a significant difference in the number of female students enrolled in Captain Elechi Amadi Polytechnic. This is contrary to our apriori expectation. This is a wake-up call

to the TVET, CEAPOLY branch. They should rise up to the challenge and hit the ground running to ensure that female enrolment increases in CEAPOLY.

Hypothesis two

Ho: The TVET enlightenment scheme has not made a significant difference in the grade point of female students at Captain Elechi Polytechnic

The result of the analysis is displayed based on the data presented table 1:

Table 3 Results of TVET Enlightenment Scheme and Grade Points of Female Students in CEAPOLY

T-Test

Group Statistics

	PERF	N	Mean	Std. Deviation	Std. Error Mean
CGPA	1.00	5	12.6000	15.53383	6.94694
	2.00	5	34.6000	41.76482	18.67779

Independent Samples Test

		Levene's Test for the Equality of Variances		t-test for equality of means						
									95% confidence interval of the difference	
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CGPA	Equal variances assumed	2.058	.189	-1.104	8	.302	-22.00000	19.92787	-67.95375	23.95375
	Equal variances not assumed			-1.104	5.086	.319	-22.00000	19.92787	-72.96705	28.96705

Source: SPSS version 23 output

From table 3, Leven's test showed that 0.189 is more than 0.05 power of the test; therefore, equal variance is assumed and the condition of homogeneity is fulfilled. The probability of the t-statistic 0.302 is more than 0.05 power of the test. This means that TVET has not made a significant difference in the grade points of female students at Captain Elechi Amadi Polytechnic. This is against our apriori expectation. TVET and the CEAPOLY branch should intensify their efforts to ensure that females' grade points improve through workshops, symposiums, seminars, and every other possible means of sensitization.

Discussion of the Findings

The study conducted on skills dynamics: panacea to TVET performance in Captain Elechi Amadi Polytechnic, Port Harcourt, Rivers State showed that TVET has not made a significant difference in the number of female students enrolled in the school. The probability of the t-statistic 0.695 is more than 0.05 power of the test This means that TVET has not made a significant difference in the number of female students enrolled in Captain Elechi Amadi Polytechnic. This is a wake-up call to the TVET, CEAPOLY branch. They should rise up to the challenge and hit the ground running to ensure that female enrolment increases in CEAPOLY.

The second result showed that TVET has not made a significant difference in the grade point of female students at Captain Elechi Amadi Polytechnic. The probability of the t-statistic 0.302 is more than 0.05 power of the test. This means that TVET has not made a significant difference in the grade points of female students in Captain Elechi Amadi Polytechnic. TVET and the CEAPOLY branch should therefore intensify their efforts to ensure that female students' grade points improve through workshops, symposiums, seminars, and every other possible means of sensitization.

Conclusion and Recommendations

The researchers therefore conclude that TVET in CEAPOLY has not actually made much impact in sensitizing female students to increase their enrolment and improve their grade points. On the basis of these findings, the researchers make the following recommendations:

1. TVET in CEAPOLY should organize workshops, symposiums, seminars, and every other possible means of sensitization to increase the number of female students in practical and specialized fields such as Agricultural Technology, Electrical Electronic Engineering, Science Laboratory Technology, and Computer Science.
2. The TVET CEAPOLY branch should rise up and heat the ground running to ensure that female grade points in practical and specialized fields such as Agricultural Technology, Electrical Electronic Engineering, Science Laboratory Technology, and Computer Science improve drastically.

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