

Technical and Vocational Education and Training and Production of Productive Workforce Graduates: An Incubation Role of Private Sector; A case of selected NACTVET Colleges in Mbeya, Tanzania

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ABSTRACT

This study examines the effects of TVET on producing a productive workforce who are graduates under the moderation role of the private sector. The study was conducted following cases of many graduates completing middle technical and vocational colleges to find they are not employable. To uncover this gap, the study used quantitative research approaches. While the research design was explanatory, the sampling technique was simple random sampling. From a population of 3 NACTVET colleges comprising 3350 units of inquiry, including students, graduates, and tutors from such selected NACTVET colleges, 357 respondents were deduced. Data collection from the sample obtained used a survey questionnaire. Before actual data analysis, a pilot survey, data cleaning, and factor analysis were conducted. Structural equation modeling was used in the actual data analysis. It gives that result Cognitive domain attributes were found to have a positive and insignificant effect on producing a productive workforce of graduates. Also, TVET psychomotor domain attributes were revealed to have positive but insignificant effects on producing productive workforce graduates, and the same results were with behavioral, affective domain skills on producing productive workforce graduates. Moreover, the analysis found positive and significant effects of three factors on producing productive workforce graduates under the moderation role of the private sector. This either suggests to education stakeholders, policymakers, and curriculum developers to adopt the model this study has introduced by bringing the private sector into TVET programs.

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1. INTRODUCTION

Acquainting a productive workforce has been the agenda in today's world of gradual changes in the labor market. A productive workforce requires the necessary production skills [1]. These skills are confined to domains, i.e., cognitive, psychomotor, and affective [2]. Due to gradual changes in the labor market, the demand or needs have been changing, which therefore requires the workforce, now the TVET college graduates, to be dynamic. This is because the professionals needed yesterday might not be in demand today [3]. Thus, lying on certificates acquired by a graduate from classes, the number of years past might be insignificant. This is what has derived this study from being conducted for TVET Colleges graduates to become productive in this labor market subjected to gradual changes. In this liberal market where the private sector engineers the economy, thus being used to this organ has proved advantageous in other countries. This also calls for schools, colleges, and universities in Tanzania to utilize the private sector to execute this for graduates to become resourceful, called a productive workforce.

The cognitive traits of a graduate include the intellectual capability acquainted with that particular student or graduate. Cognitive attributes cover the theoretical background someone should have to observe the work is done [4]. Usually, doing work is a procedural kind of juncture. Therefore, it requires someone to be used to those procedures [5]. It is an application of principles, rules, and guidelines to see that the work is done. Cognitive domain capture for understanding someone is to be capacitated [6]. It is learned, and even if borne, it is inherited from someone used to learning the model or theories [7]. To reconstruct this knowledge background, a graduate needs to access learning materials, soft and hard, which need to be budgeted. Budgeting for teaching or learning materials is what calls for private sector interventions because the government might not afford them, especially in these developing countries where Tanzania entails. The furnished library has recent and relevant teaching and learning materials such as books, journal articles, and Wikipedia. The furnished library is automated, networked, and indulged with electronic and soft materials. This then needs planning where financial resources need to be easily accessed. From which say public-private partnership then the installation of quality library infrastructures become not a case.

A graduate's psychomotor attributes are the ability to convert theories learned into practical reality [8]. Psychomotor traits become acquainted with students when subjected to the field or natural working environment [9]. This has to begin while a student is at college and in school. This is called learning by doing, which a competence-based curriculum insists on. There is no way the student can be known about particular production if not exposed to a suitable natural environment [10]. It is through doing practical, undertaking field excursion, undertaking study tour, and research that a student is exposed to reality and become experienced [11]. Creativity and innovation are built at this point of doing practical. At this stage, a student has been exposed o challenges and capitalizes them into opportunities. Through field excursion, a learner learns about the natural environment of social problems and inverts them into opportunities.

The attitudes of a graduate being able to create, problem-solving, energies, convert challenges into opportunities, be eager to learn new things, risk-taking, and on job pressure handling are affection attributes leaned following exposures [12]. Leadership and teamwork are due to exposure to a suitable environment [13]. This learning activity requires collaboration, i.e., where public-private partnerships come in. It is expected that while the government is installing building infrastructures and favorable policies for liberation, the private sector is to bring the experts, enabling the establishment of solid research and development units in the NACTVET Colleges and enhancing the establishment of strong and sustainable curriculum development units.

Moreover, bringing in the private sector as an intervention organ fosters site/ field excursion projects when a student is still at college or school and after completing studies [14]. This calls for the government to create a suitable environment for public-private partnerships strongly stranded. Internship programs, for instance, play a significant role in equipping graduates with a real practical or production environment [15]. Internet shipping site exposes graduates with skills the current labor market is in demand with [16]. This is because professionals acquired in class some years back may be revealed as un-useful in a particular moment and count for a graduate with A's in his/her certificates as unproductive. They were calling for the private sector with this study because it assures a strong connection among graduates, college management, and employers. Another incubation role of the private sector should be the provision of small loans/credits for graduates to start and run their businesses. The private sector is also expected to be market seekers of the products from micro and small businesses installed by the graduates from TVET Colleges.

Affective domain attributes entail punctuality, time management skills, aggressiveness, empathy, positivism, awake, visioning, working in-line with objective formulated, hardworking and ethical bounds [17]. It is by being eager to learn from others and learn new things that call for TVET and school education/training to be in the form of competency-based education and training [18]. The affective domain is either the behavioral outcome acquainted with a student or graduate, given that other factors for quality education endowment are met. It is affection traits that differentiate a graduate who went to school and is embedded with ethics and one who has not learned such behavior. It is obvious to find someone who has not gone to school or college, is not visional, objective-focused, committed, exercises no due care, and cannot communicate [19]. These workforces are truant, dishonest, and, therefore, not dependable.

In Sweden, about 34% of graduates from technical and vocational education and training colleges were found to be employed in the construction and joinery industry [20]. This group of productive youths was experienced and creative enough to execute a tangible object or product. It was through practical, creative, and constructive studies they had while in college that necessitated them with such necessary skills.

Theoretical TVET education was revealed by Maurer [20] in Rwanda to transform graduates' mindsets to start and run their businesses. This has been consistent with the behavioral attitudes acquired by form four graduates from technical and vocational colleges in Kenya, who occupy 80% of the informal sector [21]. This has been a reason for Kenya to be a fast-growing country economically. It was also found that most SMEs

involved youth graduates from middle colleges engaging in floriculture, horticulture, and foodstuffs production.

From the background review above, none of the studies has said the moderation role of private and non-government institutions in creating productive labor force graduates. Thus it is through this study. Therefore the necessary cognitive, psychomotor, and behavioral skills a labor force now a graduate from TVET colleges need to be acquainted with to be productive would not be an issue. This is because the required furnished school infrastructures/learning environment, library, materials, and all necessary facilities would be adequately accessed and used.

It is by being used in the private sector where innovative/modern learning technologies from the labor market would be brought into the system. Through private sector intrusion uncovered by this study, the issues of experiences, site work, and creativity the graduates need to build with them would not be the case. To address this gap, the study used four objectives which were to determine the effect of cognitive TVET in producing resourceful graduates; to analyze the effects of psychomotor TVET on producing resourceful graduates; to examine the effects of TVET behavioral, affective skills in creating productive workforce graduates, and to assess the moderation effect of private/non-government institutions sector in TVET system on creating productive workforce graduates.

2. METHOD

The study was conducted in the Mbeya region, where three NACTVET Colleges were involved. The area was chosen to represent other areas in Tanzania and the world facing the same problem of many graduates from colleges but finding they are not productive. It has been revealed that college graduates have good certificates with impressive grades but are not employable. This either resembled the results of the Integrated Labor Force Survey [22], which reported that 15% of 15,000,000 of Tanzania's youth graduates were economically idle, and it is the same group, specifically at the age of 15-35 years, found non-employable.

The study used a survey research strategy to uncover what is behind the scenes, while the research design was explanatory. By using simple random sampling, a 357 sample size was deduced. This computation used the Cochran formula, $n = \frac{N}{1 + N(\alpha)^2}$ where N (total population) = 3350 and $\alpha = 0.05$. The unit of inquiry was students and graduates from the three mentioned NACTVET Colleges, i.e., VET Mbeya Zonal College, Uyole Agricultural Research Institute, and Rungwe International College of Business and Entrepreneurship studies. From the three colleges, at least 1,000 sampling frame was subjected to random sampling from which at least 80 respondents were derived as a sample. Random sampling created cards labeled 'YES' and 'NO.' It is with those who chose the cards written 'NO' were selected to form a unit of inquiry. Using the questionnaire, data were collected before being subjected to the screening. The questionnaire was piloted to check its reliability and construct Validity before further analysis. It was with a pilot survey where 25 respondents were involved. This number was enough, as suggested by Whitehead, Julious, Cooper, and Campbell [23] recommended

adequate size of responses for the pilot survey be between 10 - 30. The pilot survey was followed by explanatory factor analysis, later confirmatory analysis, and construct validity testing. Exploratory factoring being part of the analysis, structural equation modeling was applied. With S.E.M., multi-colinearity, linearity, and homoscedasticity testing were conducted. SEM was adopted as it was found suitable for a study with many to many variables operationalization where moderating/mediating variables become part of the relationship [24]. Moreover, SEM was found appropriate since the sample size (n) was >200 but not more than n = 400 [25]. The structural model equations guided the study were:

$$Pwf = \beta_0 + \beta_1 CD + \beta_2 PsCA + \beta_3 ADA + e \dots\dots\dots 1)$$

$$Pwf = \beta_0 + \beta_1 Ds + \beta_2 P + \beta_3 (Ds*Ps) + e \dots\dots\dots 2)$$

Pwf = productive workforce; β_0 = constant factors; CD = Cognitive domain skills; PsCA = Psychomotor domain skills; ADA = affective domain skills; and Ds = education domain skills.

3. RESULTS AND DISCUSSION

3.1. Pilot Survey

The pilot survey was conducted to test the internal consistency of the questionnaire. Through analysis, Cronbach's alpha values were 0.74 for cognitive domain skills, 0.70 for psychomotor domain attributes, 0.76 for affective behavioral skills, and 0.82 for the productive workforce (See Table 2 of testing results). With those results, the research instrument, i.e., the questionnaire, was reliable for further data analysis and discussion.

3.2. Data cleaning and normality testing results

Before factor analysis, multi-co-linearity, and linearity testing, the collected data were cleaned and tested for normality. Data cleaning involved deleting missing values, removing extreme data, and testing for skewness and kurtosis. Using a pairwise data deletion tool and from a data set of 8, 2% of missing values were deleted. Using Mahalanobis Distance (MD) computation, 48 multivariate outliers were removed, resulting in 280 responses retained for normality and data analysis. Moreover, by applying the coefficient of skewness and kurtosis, the results were distributed as -/+3.

3.3. Exploratory Factor Analysis and Model Development

This part helped to consider whether the proposed conceptual framework was consistent with actual data. This is because, in the beginning, the conceptual framework was developed without data, and it is now unclear if the constructs are aligned with their underlined measure. To ensure constructs are aligned with their underlined measures, factor analysis of both exploratory factor analysis and confirmatory factor analysis was used as described below:

First, exploratory factor analysis with varimax rotation was conducted to assess the underlying structure for the conceptual framework's eighteen items. Four criteria were

adopted in selecting factors to retain: Eigenvalues scree test, theoretical assumption, and factors with at least three items. Verma and Abdel-Salam [26] recommended using a combination of criteria to help offset the weaknesses of using based on one criterion.

Given this situation, five factors were extracted based on those four criteria, which explain 64.3% of the cumulative variance. The five factors had Eigen values > 1 in a scree test. All factors above the cutoff point were retained, and those below the break/cutoff point were dropped. Finally, all factors retained had at least three indicators. This means that all retained factors met the recommendation Dhakal [27] made.

After discovering that the five factors have met the criteria and are now qualified to be retained, further indicator variables analysis was done to see if this indicator fits the underlying factor. The following criteria recommended by Yongo and Pearce were adopted for retaining or dropping an item/indicator as follows:-

First, all items loaded into their associated factors were retained, and those loaded into more than one factor were dropped. Second, if more than two items were loaded in one factor, all items were retained, and if less than three items were loaded in one factor were dropped. Third all items with KMO, Bar let us test, p-value more significant than 0.5 were dropped. Fourth, all items with loading ranging from 0.5 or above 0.8 were dropped. As far as this part is concerned, the three to six items in each factor were retained to fit the model (See Table 1) adequately.

Table 1: Rotated Component Matrix

Factors	Indicators	CD	PsCA	A.D.A.	Ps	Pwf
CD	Theo	0.74				
	Pri	0.67				
	UNDER	0.62				
	Know	0.70				
PsCA	CrE		0.71			
	INNO		0.76			
	ProS		0.80			
	RT		0.59			
	TCO		0.75			
ADA	HARD			0.79		
	TM			0.76		
	Po			0.64		
	UOB			0.72		
	V-TFo			0.80		
Ps	Ps1				0.80	
	Ps2				0.68	
	Ps3				0.69	
Pwf	Logical					0.78
	Creative					0.80
	Innovator					0.65
	Experienced					0.71
	Reflexive					0.76

After exploratory factor analysis, the next step was to perform confirmatory factor analysis to account for measurement error, which then was not addressed in exploratory factor analysis as described in detail below:-

To carry out confirmatory factor analysis, the measurement model was developed based on the factors from the exploratory model to test for measurement error. The following criteria were used to guide the model refinement process to achieve a better model fit as recommended by Barbra, who asserts that standardized regression weights (SRW) values should be above 0.5. Moreover, it was recommended that the value $GFI > 0.90$; $AGFI > 0.9$; $CFI > 0.95$; $RMSEA \leq 0.05$. Therefore to enhance the model fitness, items with modification indices that reveal high covariance between measurement errors accompanied by high regression weights between these construct errors are dropped.

After the initial run of the AMOS 25, the model performed well; therefore, all items from such factors were retained. Running of CFA using AMOS 25 revealed $GFI = 0.93 > 0.90$ (accepted); $AGFI = 0.96 > 0.90$ (perfect); $CFI = 0.97 > 0.95$ (accepted); and $RMSEA = 0.03 < 0.05$ (perfect). Also, all items retained had standardized regression weights (SRW) values cut off 0.5 or greater than the accepted level of fit, hence falling within the accepted framework. This means that the selected observed variables (indicators) are used to fit the model described in Figure 1.

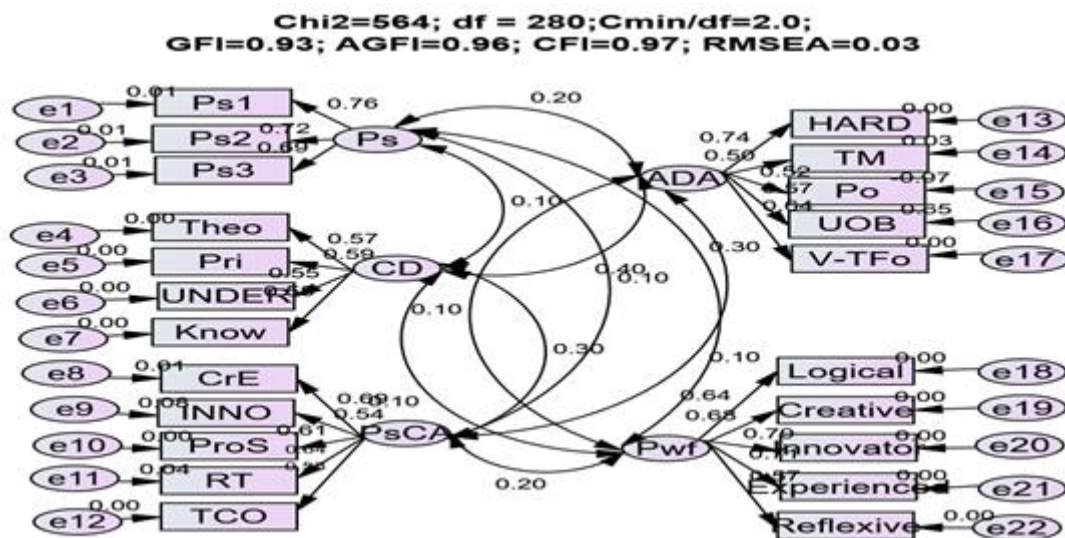


Figure 1. Measurement Model

Key Note

CD-Cognitive domain; **Theo**- theories; **Pri**- Principles and guidelines; **UNDER**-Understanding; **Know**-Knowing to standards; **PsCA**- Psychomotor domain; **CrE**-Creation; **INNO**-Innovation; **ProS**- Problem solving; **RT**-Risk taking; **TCO**-Turning challenges into opportunities; **ADA**- Affective domain; **HARD**-Hard working; **TM**-Time management; **Po**- Positivism; **UOB**= Objective oriented; **V-TFo**-Vision-target focused; **Ps1**-Public private partnership; **Ps2**- Private financial resources; **Ps3**-Private experts; **Pwf** = Productive work force

3.4. Reliability and Construct Validity

Reliability was evaluated in terms of composite reliability, as described in Table 2. The composite reliabilities (CR) in Table 2 range from 0.87 to 0.91, which were all above or equal recommended value of 0.7, suggesting adequate internal consistency [28].

Convergent Validity and discriminant validity were assessed based on the measurement model results in Table 2. Convergent Validity was evaluated in terms of average variance measured by the measured construct concerning the measurement error. Hair, Black, Babin, and Anderson [29] argued that convergent Validity requires an AVE of not less than 0.5. Table 2 showed that all AVE values were above the recommended value of 0.5 (ranging from 0.72 to 0.84), thus demonstrating adequate convergent Validity.

On the other hand, discriminant validity was evaluated by comparing the AVE for each construct with the shared variances between this individual construct and all of the other constructs. A higher AVE than the shared variance for an individual construct suggests discriminant validity [30]. A comparison of all the correlations and square roots of the AVE on the diagonal in Table 2 indicated adequate discriminant validity.

Table 2. Reliability and Validity testing results

Factors	CR	AVE	MSV	Max R(H)	CD	PsCA	A.D.A.	Ps	Pwf
CD	0.88	0.74	0.10	0.92	0.89				
PsCA	0.90	0.72	0.09	1.02	0.21	0.81			
ADA	0.92	0.81	0.12	0.94	0.11	0.41	0.83		
Ps	0.87	0.80	0.11	0.87	0.30	0.51	0.40	0.84	
Pwf	0.91	0.84	0.12	0.91	0.36	0.29	0.22	0.23	0.86

3.5. Hypothesis Testing

3.5.1.1. Cognitive domain attributes for production

With this subtitle, the study aimed at examining the effects of cognitive skills a graduate is to be acquainted with for production. The cognitive skills that a student /graduate should acquire include i) being known of the theories (models), ii) being used to principles and guidelines iii) being used to standards in producing a specific product/service. Cognitive attributes are graduate attributes that define his knowledge background or professionalism in production [31]. From the field, it was found that the intellectual background knowledge someone learned positively affected production though insignificantly revealed (H_{1a}). To un reveal such insignificance, the moderation effect of private / non-government institutions came in (H_{1b}) (See Table 3).

Table 3. Cognitive domain attributes and productive workforce graduates under moderation effects of private and non-government institutions

Hypothesis	Relationships	Estimate	Error	CR.	p	Remarks
H_{1a}	Pwf<----CD	0.64	-0.01	0.91	0.00	REJECTED
	CD<-----Theo	0.57	-0.10	1.90	0.04	-
	CD<-----Pri	0.59	0.05	-2.00	0.00	-
	CD<-----UNDER	0.55	0.42	4.01	0.00	-
	CD<-----Know	0.58	0.00	-1.96	0.00	-
H_{1b}	Pwf<--CD<---Ps	0.76	-0.09	2.00	0.01	ACCEPTED

With S.R.W = 0.64, CR = 0.91 at p = 0.00, and it indicates a positive relationship but insignificant between cognitive traits and workforce productivity as, for now, the TVET

graduates. Cognitive traits imply knowledge necessary for a graduate to produce the same fact reported by Sweller [31]. Knowledge is the embark of theories someone needs to be acquainted with for production. It is with the theories someone is to be built with which are to be converted into real things, i.e., products. A productive laborer uses principles and guidelines in production, which need knowledge acquired during the learning process.

3.5.1.2. Moderation effect of the private sector in the cognitive-TVET system

The results under H1a showed positivism (SRW = 0.64) though insignificant given CR = 0.91 at $p = 0.00$, but that over H_{1b} had modified positive and significant results. With S.R.W = 0.76, CR = 2.00 at $p = 0.01$, and the effect was further manipulated by burrowing the new variable (private sector/non-government institutions). Given S.R.W = 0.76 after moderation against 0.64 (before moderation) indicate that intrusion of the private sector in the TVET system modified the model by 0.12. Consistent results were over the significant critical ratio = 2.00 > 1.96 (recommended level) while $p = 0.01 < 0.05$. This is from the fact that the private sector assume to incubate the TVET programs by injecting in the fund, and human resources (experts), which make teaching and learning materials, and infrastructures become available and accessible

3.5.2.1 Psychomotor domain attributes for production

With this subtitle, the study was motivated to analyze the effects of psychomotor domain attributes a graduate is to be equipped with for production. The psychomotor domain attributes included i) creation, ii) innovation, iii) problem-solving, iv) risk-taking v) turning challenges into opportunities. The relationship results were found and presented in Table 4 before and after moderation.

Table 4. Psychomotor domain attributes and productive workforce graduates under moderation effects of private and non-government institutions

Hypothesis	Relationships	Estimate	Error	CR.	p	Remarks
H _{2a}	Pwf<-----PsCA	0.69	-0.90	0.92	0.00	REJECTED
	PsCA<-----CrE	0.54	0.01	0.72	0.01	-
	PsCA<-----INNO	0.59	0.80	1.45	0.08	-
	PsCA<-----ProS	0.61	0.12	-3.00	0.00	-
	PsCA<-----RT	0.64	-0.70	1.57	0.04	-
	PsCA<-----TCO	0.58	-0.62	1.00	0.00	-
H _{2b}	Pwf<--PsCA<---Ps	0.72	0.04	1.98	0.03	ACCEPTED

With S.R.W's estimate = 0.69, this indicated that psychomotor domain attributes a graduate should acquire at TVET colleges positively affected production. Though these positivistic results showed insignificance by intruding on the private sector in the model, the relationship became strong given S.R.W= 0.72 and significant by CR = 1.98 > 1.96, $p = 0.03 < 0.05$. It was through the moderation effects of private sectionalization that this study suggests and assures the concerned stakeholders of establishing strong research and development unit within the college compound. Moreover, it is through the revealed obsolete (old) curricula used in TVET colleges. This would not be the case because through research (discoveries) unit new programs would be introduced in order to

capitalize on the new skills (professionals) coming in (not existing) and therefore accommodated in the renewed curricula. With this innovation, it is expected that a strong and sustainable curriculum development unit will be established within NACTVET colleges.

3.5.2.2. Moderation effects of the private sector on the psychomotor-TVET system

The results with H2a indicated positivistic results (S.R.W = 0.69) between psychomotor attributes and production of a productive workforce (TVET graduates) though the effect was insignificant with CR = 1.92 at $p = 0.00$. This differed from the one with S.R.W = 0.72 at CR = 1.98 and $p = 0.03$. This indicated that including the private sector and non-government institutions in the model modified it, and the relationship became solid and significant. The strong positive results and significance shown were due to the incubation role of the private sector in enhancing the practical education/pieces of training. Through liasoning with private and non-government institutions, TVET public colleges would be access to teaching materials and facilities [32]. Also, site works and field excursion studies would be inevitable, thus developing freshers (graduates) with necessary (relevant) skills which are in demand in the labor market, which was said the same by Unterhalter [33]. Through private sectionalization, graduates would be supported with finances and small loans to start and run their enterprises. Through privatization, it was found that access to the market of the products from these small business firms to be established would be specific. Furthermore, modification or value addition shown by bringing in the private sector in the model is the strong connection between colleges, graduates, and employers (labor market).

3.5.3. Affective domain attributes for production under the moderation effects of private sector

Under this subtitle, the study aimed at determining the effects of affective domain attributes the TVET graduates should possess on production. The affective domain attributes included i) hardworking ii) time management, iii) positivism iv) used to be objective v) being vision/target focused. The results from the field were revealed and presented in Table 5. Table 5 had responses before and after moderation effects of the private sector and non-government institutions' intrusion on the model.

Table 5. Affective domain attributes and productive workforce graduates under moderation effects of private and non-government institutions

Hypothesis	Relationships	Estimate	Error	CR.	p	Remarks
H _{2a}	Pwf<-----AD _A	0.70	-0.80	2.00	0.00	ACCEPTED
	AD _A <-----HARD	0.74	0.07	0.97	0.00	-
	AD _A <-----TM	0.50	-0.60	0.42	0.03	-
	AD _A <-----Po	0.52	-0.54	1.96	-0.97	-
	AD _A <-----UOB	0.57	0.22	1.02	-0.65	-
	AD _A <-----V-TFo	0.64	-0.01	2.10	0.00	-
H _{2b}	Pwf<--AD _A <---Ps	0.69	0.04	1.99	0.01	ACCEPTED

With $S.R.W = 0.70$ at $CR = 2.00$, $p = 0.01$ from H3a indicated that the affection attributes acquired by TVET graduates had a positive and significant effect on his/her productivity at work. Acceptance of the null hypothesis (H3a) against the alternative hypothesis showed favoritism between the two variables. The same responses were with the indicators (observed variables) and its latent constructs (unobserved variables), though with an insignificant relationship. With TVET affective behavior a graduate acquired, what causes his/her to become a productive workforce. The manipulated variable, productive workforce graduates, was found to be due to the learned hardworking spirit in terms of effective time management, which helped to reveal the daily operation targets being met. The revealed productive graduates' workforce was moreover found to be caused by positivism and ability to handle pressure at the workplace, focused on the objective on hand and vision-oriented.

The acceptance remarks with H3a (before moderation) were the same as those after moderation effects of the private sector. With $S.R.W = 0.69 > 0.5$, $C.R = 1.99 > 1.96$, and $p < 0.05$ shows the indented results that involving the private sector in TVET education and training enhances the process by acquiring graduates becoming vision-oriented, focused on meeting objective underhand and adopting the hardworking spirit which are the skills needed for producing consistent results reported by Liu, Yi and Wang [34].

4. CONCLUSION

A productive workforce is an individual with intellectual ability. A productive workforce is a laborer with all the necessary skills to produce a product or service. A productive labor force is the expert personnel to execute in extractive sectors, such as agriculture, mining, gas, and oil, in the manufacturing, construction, trade, and service sectors. It was found that cognitive domain attributes (skills) make a laborer productive. Moreover, it was revealed that psychomotor domain behavioral attributes count positively and significantly on a productive labor force. Also, practical behavioral attributes were positive and significant determinants of a productive workforce. The positive and significant relationship between variables followed the moderation effect of private and non-government organizations in the model.

Thus it was from these blessing results that this study calls for the following recommendations for different target groups in the TVET education model. To policymakers, the study has been a reminder to continue making the education environment fair for private sector execution. The exit and entry barriers and unfair policies that hinder liberalization should be avoided, and many incentives should also be sustainable for education infrastructures. The government should ensure good school infrastructures such as ICT, materials, and facilities to enhance the quality and relevant theoretical and practical training. The NACTVET Colleges management should align with the private sector (employers) to align education curricula with the demand labor market prerequisites. Through this study, tutors are reminded to be also productive by being used to the appropriate teaching methodology in this competence-based curriculum paradigm shift. Tutors are reminded to be updated on their old ways of teaching, attending seminars and workshops to be adapted to new ways or new technologies of teaching.

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Appendix

**Chi2=564; df = 280; Cmin/df=2.0;
GFI=0.93; AGFI=0.96; CFI=0.97; RMSEA=0.03**

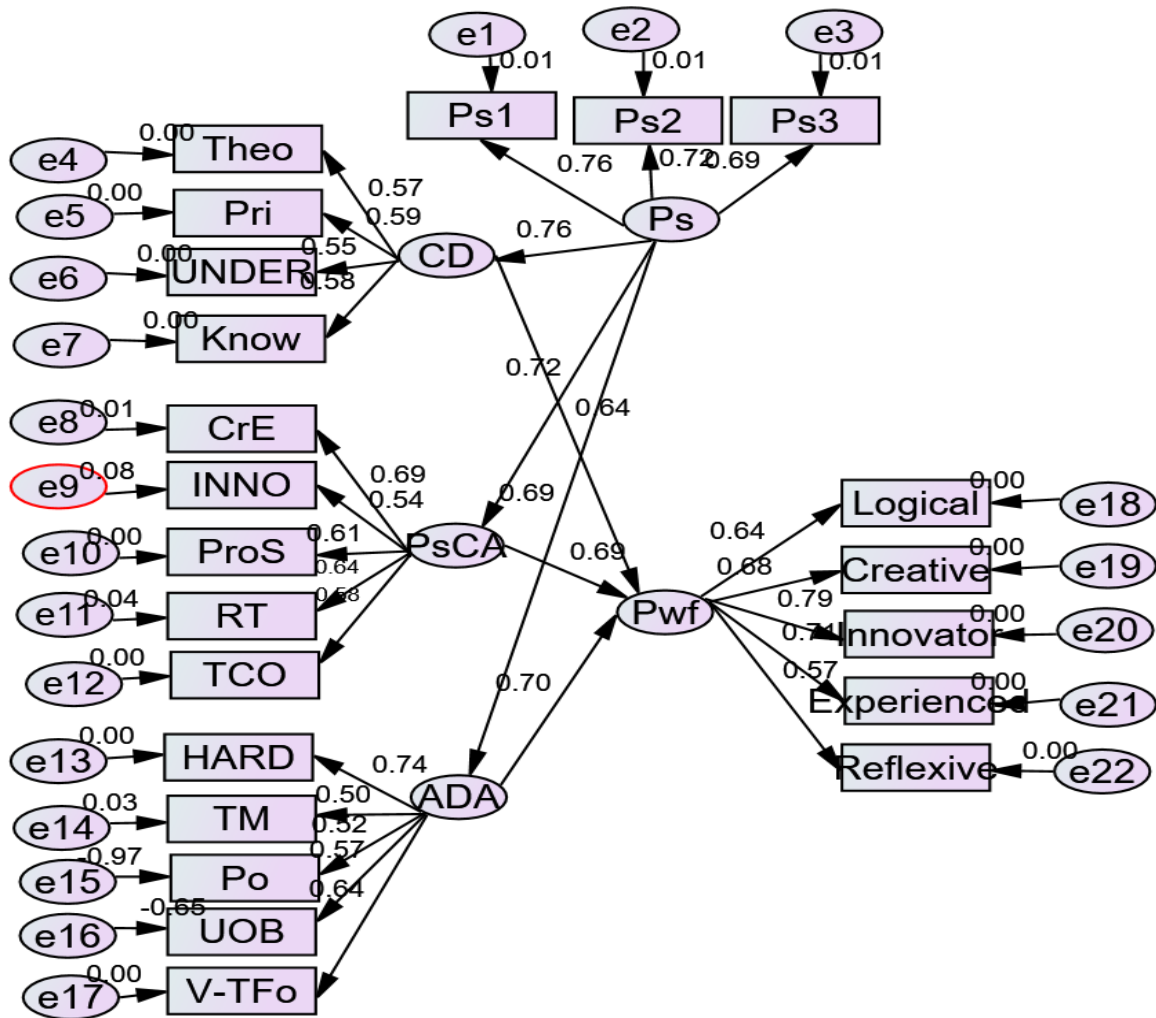


Figure 3. Structural Model