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## INTERNATIONAL & COMPARATIVE EDUCATION | RESEARCH ARTICLE

# Increasing demand for transnational education in Ghana: A structural equation analysis of the causation

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**Abstract:** Transnational Education (TNE) has often been used as a measure to support the economic sustainability of the institution of higher learning involved. But in recent times, TNE has become one of the important avenues for Higher Education Institutions (HEI) to improve their International Students Portfolios without bringing the students to the HEI host-country. But the bigger question is on the demand side of transnational education; what is pushing students in developing countries to enroll in Transnational Education (TNE) Programmes, modules or academic units? This research paper used the structural equation model to analyse a surveyed sample data drawn from a TNE active students' population of 2720 in Ghana; representing five universities in Ghana which had either an articulation or franchise TNE agreements with one or more of UK universities. The results showed a causation of both signaling and human capital development factors; however, a much stronger path relationship along the TNE Diploma acquisition, human capital development and high earnings. The research posits that the value of the TNE Diplomas in Ghana is in its ability to deliver the requisite knowledge, ability and

### ABOUT THE AUTHOR

This article is one of several Transnational Education research themes of this authorship team. The team comprises of Dr Eric O. Owusu-Kumih (Director, Ghana Technology University College, Koforidua Campus) is a Transnational Education and Educational Enterprise Strategist, Frank Senyo Loglo (Director, Ghana Technology University College, Ho Campus), is an expert in flexible learning in higher education with special emphasis on open education, non-traditional and lifelong learning, and Dr Fred Boateng, an expert in Higher Education Management and Administration. The current research focus of this team is towards the development of a Transnational Education Management Capability Maturity Model for uptake by receiving HEI's in developing countries.

### PUBLIC INTEREST STATEMENT

This paper discusses the reason why students preferred getting a foreign university education in their home countries through a transnational education arrangements (TNE). Under the TNE, students are enrolled into a local university (receiving institution) to pursue a foreign degree from an international university (Sending institution) through a TNE. Three theoretical arguments were put to test. The first was that, an employee who has TNE qualification potentially earns more salary. The second was that, students prefer to attain the foreign degree in their home countries because, a TNE qualification from a reputable international university convinces employer that you are capable of performing (TNE Qualification Signals performance). The third theory tested was that, students preferred to enrol into foreign universities locally because the programme contents, tuition delivery and the learning experiences teach the students to perform, and indeed they are able to perform better on the job (i.e. Human Capital Development Theory). The results from the research showed some very interesting linkages between the theories.

skills to its graduates. Again, the results showed that the inherent “signals” of good education of which TNE arrangements provides, adds to its overall appeal.

**Subjects:** Higher Education; International & Comparative Education; Education & Development

**Keywords:** Human capital development; returns to education signaling; structural equation model; transnational education

## 1. Introduction

Many researchers have suggested that, globalization seems to be the driving force behind the increasing trends of internationalization of higher education. This according to them have resulted in the increases in global movement of people through exchange Programmes, flow of ideas and capital flight particularly towards the wealthier countries (Akinlo, 2004; Bhandari & Blumenthal, 2011; Knight, 2008; Montgomery, 2010; Ndulu, 2004). Indeed, a recent national and worldwide surveys of university Transnational Education (Henceforth, TNE) priorities and rationales show that establishing an international profile or global standing is becoming more important than reaching international standards of excellence (International Associations of Universities, 2010).

For many years, there have been two competing theories: human capital theory and the signaling hypothesis. Human capital theory contends that higher education increases the productivity of students, which explains, inter alia, why graduates earn more than non-graduates (Becker, 1994; Becker & Woessmann, 2009; Hartog & Van den Brink, 2007; Nafukho, Hairston, & Brooks, 2004). Signaling theory contends that higher education identifies high productivity individuals without necessarily raising their future productivity to employers. This too explains why graduates earn more, on average, than non-graduates (Chevalier, Harmon, Walker, & Zhu, 2004; Groot & Oosterbeek, 1994; Kjelland, 2008).

Most literature suggest that internationalization is largely adopted as a measure to support the economic sustainability of the higher education institutions involved. But the bigger problem is on the demand side of transnational education Ghana; what is pushing students in Ghana to enroll in transnational education programmes, modules or academic units? Some researchers such as Ilieva, Beck and Waterstone (2014). Knight (2015) worked on the various aspect of this problem but placed emphasis on the universities from a developed country. However, much of the research works conducted or the debates have been the benefits or otherwise generated by the home country (sending institution). Indeed, much of the recent criticisms of the TNE have been on the sending institution's fixation on the revenue-making venture as well as the rise in its ranking metrifications (HE ranking status) (Knight & McNamara, 2015). This research paper attempts to contribute in filling the knowledge gap that exist as far as the receiving TNE country is concern. This research focuses on the returns TNE brings to the students who enroll and complete the TNE programmes.

## 2. Theoretical framework

Reference Knight (2015) and Knight (2013) defined the TNE and internationalization of higher education as “the process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of post-secondary education”. Again, in one of his most recent article, Knight (2015) stated that the internationalization at the national, sector, and institutional levels is defined as the “process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of postsecondary education”. The internationalization of higher education is considered to be a response to, and even a product of globalization resulting in an intensification of the global/local flows of people, ideas, and capital in higher education institutions, particularly in wealthier countries (Bhandari & Blumenthal, 2011; Knight, 2008; Montgomery, 2010). Reference Wals and Jickling (2002) discussed sustainability with specific reference to higher education and reiterated that the term is often problematic in that it has multiple meanings. However (Thompson, Peteraf, Gamble, Strickland, & Jain, 2013) attributed sustainability in relation to competitive advantage. To

them, gaining a competitive advantage alone was not enough, but the ability to build a system that is able to sustain a competitive advantage over time is the key difference between a market leader and a follower. However, Knight (2015) as well as McNamara and Knight (2014) suggested that the right partnership among international universities give them a much-needed competitive advantage. Internationalization of higher education is currently nuanced by transnational education (TNE). Many would-be international students now pursue foreign degrees in their home countries at a local higher education institution through an articulation or franchise arrangements with a foreign university.

Reference Hoey (2016) suggested that proper and a rationally sensitive ethical consideration in any international partnership arrangements ensure that the outcomes are beneficial to all concerned, including the communities and student bodies of the countries in which the partnered institutions are located. Also, Pashby and de Oliveira Andreotti (2016) analysed a situation within a larger project context focusing on ethics and internationalization in higher education. The concluded that internationalization is occurring at a fast pace and encompasses overlapping and contradictory aims largely framed by market imperatives. And that, ethics were imperative to success of any prospective deal. Their work also suggested that institutions of higher education are increasingly promoting sustainability.

Reference Taylor (2016), on the other hand, developed a nine-stage model which was to serve as a guideline for universities seeking international partnerships. The model anticipated that both partners needed to build a sustainable stage in the model process. Reference Lindsay and Antoniou (2016) also concluded that culture is an important consideration in any international partnership arrangement with UK universities however, its relevance is a facade in relation to the extent to which the UK degree is cherished by the local populations. This was a shape contrast in comparison to work done by Bodycott and Lai (2012) who maintained that culture still held sway towards decisions people make with regards to UK university. Based on their findings of the null cultural effects, Lindsay and Antoniou (2016) implied that it was no surprise that some institutions implore state regulators to aid or hinder UK universities entry. However, according to them the potential market and local desire for a UK degree can outweigh difficulties with national legislation, although clearly the harmonization of legislation aids market entry and reduces risks.

### **2.1. The returns to education**

A strong relationship between education and labour income has been observed repeatedly in empirical studies. (Kirby & Riley, 2008; Mincer, 1958; Walker & Zhu, 2001). Indeed, multi-discipline development researchers have seemingly concluded that education have a positive effect on earning of an individual and improves economic growth of a society (Becker, 1994; Becker & Woessmann, 2009; Chevalier et al., 2004; Groot & Oosterbeek, 1994; Hartog & Van Den Brink, 2007; Kjelland, 2008; Nafukho et al., 2004).

Returns to investment in education based on human capital theory have been estimated since the late 1950s. In the 50s-plus year history of the estimates of returns to investment in education, there have been several reviews of the empirical results in attempts to establish patterns. Many more estimates from a wide variety of countries, and estimates based on new econometric techniques reaffirm the importance of human capital theory. In the human capital perspective, over education may result from a deliberate choice because the low-level job is a good investment opportunity. Reference Kroch and Sjoblom (1993) tested the prediction that over schooled workers are more likely to move to higher-level occupations (measured from wage regression coefficient weighted sums of schooling, experience and required training). The prediction is borne out, but the same result of increased likelihood of upward occupational mobility is found for under-schooled workers. Again, Sicherman (1991) also found that overeducated workers are more likely to change occupation when moving firm and that, undereducated workers are more likely to move to a different job in the same occupation. One such piece of evidence is given by Alba-Ramirez (1993); who concluded that the overeducated have faster earnings growth with tenure.

Signaling theory contends that HE identifies high productivity individuals without necessarily raising their future productivity to employers. This too explains why graduates earn more, on average, than non-graduates (Chevalier et al., 2004; Groot & Oosterbeek, 1994; Kjelland, 2008).

Within the paucity of available literature, TNE has shown to indirectly influence future earnings of graduates of the receiving institution. Researchers Schreiber, Nora, Stage, Barlow, and King (2006) concluded that, graduates from some receiving TNE countries get opportunity to emigrate, work abroad and earn a higher income. Comparatively, graduates with domestic university qualifications will struggle to get employed if they were to cross borders. Again, Lien (2008) also found that, the key motivation of students enrolling in a TNE programme is to improve their professional skills for career advancement. This means that the potential to develop the prerequisite skills of employment which will ultimately affect their performance and progression was the mean rationale. The latter study above confirms human capital development influences the students' choice of TNE while the former study affirms that signaling of a TNE prospects affects the students' decisions to enroll. The two arguments eventually influence earnings or incomes.

From the above, the following hypotheses are therefore made:

## 2.2. Hypothesis statements

H1- Preference for TNE Diplomas has a direct effect on Higher Earning

H2- Preference for TNE Diplomas has an indirect effect on Higher Earning through signalling as a mediator

H3- Preference for TNE Diplomas has an indirect effect on Higher Earning through HC development as a mediator

## 3. Methodology

The study used the structural equation model to analyse the surveyed sample data drawn from a TNE active students' population of 2720 in Ghana. This represents a combined TNE student population of five universities in Ghana which have at least one TNE arrangement with a foreign university. Questionnaire administered through the email was preferred as data collection instrument because it was efficient and economical. A total of 300 questionnaires were emailed to student sampled proportionally, 231 were filled and returned. The responses were subsequently used for the analysis; giving a response rate of 77%. Data were analyzed by SPSS version 20 and also by SMART-PLS version 3 for the Structural Equation Model (SEM). SEM is an agglomeration of statistical models which seeks to clarify and explain the relationships between multiple latent variables (Hu & Bentler, 1999). SEM was employed in this study because researchers are able to examine the interrelationships between multiple dependents with their independent constructs at the same time (Hu & Bentler, 1999; Byrne, 2008). Again, SEM gives the researcher the opportunity to examine both the measurement and structural components of a proposed model. This is achieved by testing the relationships among different kinds of independent and dependent constructs all within the same time (Fornell & Larcker, 1981; Gefen, Straub, & Boudreau, 2000; Hu & Bentler, 1999; Tabachnick & Fidell, 2001; Byrne, 2008). Because of these important attributes, SEM analytical techniques have become very popular method of empirical analysis in every discipline (Henseler, Hubona, & Ray, 2016; Hoyle, 1995; Hu & Bentler, 1999; Shah & Goldstein, 2006). This makes the SEM most suitable for this research study because this study has multiple independent-dependent relationships. For this research study, the variance-based partial least square SEM (PLS SEM) technique was used.

## 4. Empirical results

Figure 2 below shows both the constructed inner model and outer model with indicators to both the endogenous and exogenous latent variables. This figure is giving no numeric dimensions because the PLS path Algorithm had not been run. The indicators for the latent variables are as

follows: TNE Diplomas (TNE1, TNE2, TNE3, TNE4); Signaling Factors (SIG1, SIG2, SIG3, SIG4); Human Capital Development Factors (HCD1, HCD2, HCD3, HCD4); High Earnings or high Compensation (HE1, HE2, HE3, HE4). Some of the indicators express reflective scales while others are formative and are shown in Figure 1 below:

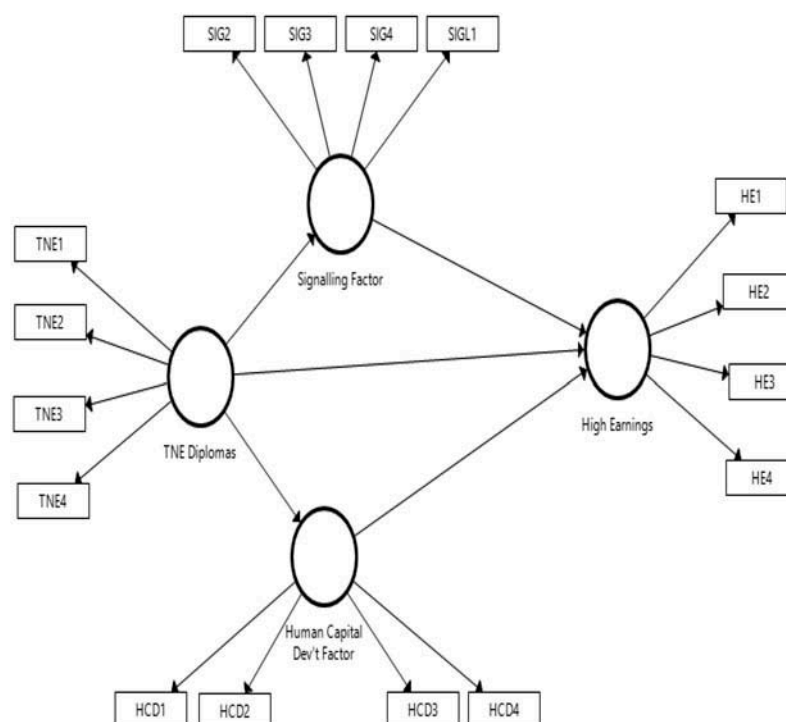
#### 4.1. Assessment of the measurement model

Assessing a measurement model provided an opportunity for a well-thorough testing of the reliability and validity of the latent constructs and its indicator variables. It is possible to establish an approximate model fit when one conducts a tests of model fit. An approximate model fit criteria helps researcher's answer the question of how big is the inconsistencies that exist between the model-implied and empirical correlation matrix. If it is established that the inconsistency is substantial, then it becomes a problem which has to be addressed by the researcher. According to Kiker & Santos (1991), the only approximate model fit criterion which is currently being used for PLS path modelling is the standardized root mean square residual (SRMR); even that it is used cautiously. A value of 0 for SRMR would indicate a perfect fit and generally, an SRMR value less than 0.05 and over generously 0.08 would be seen as a generally acceptable fit (Henseler et al., 2016). Again, Kiker & Santos (1991) cited past researchers and suggested that the normed fit index (NFI) is also used as another determinant for the approximate model fit criterion. However, the values for the composite models are still being determine but for the factor model, any value above 0.90 is acceptable (Henseler et al., 2016). Because the PLS-based Model-fit is still in the early stages, most researchers cautioned its application especially using the critical threshold values given above as the benchmark for evaluating, reporting and comparing models (Hu & Bentler, 1999). In spite of these cautions, these researchers have given a report on the approximate model fit (Saturated Model) in Table 1 below:

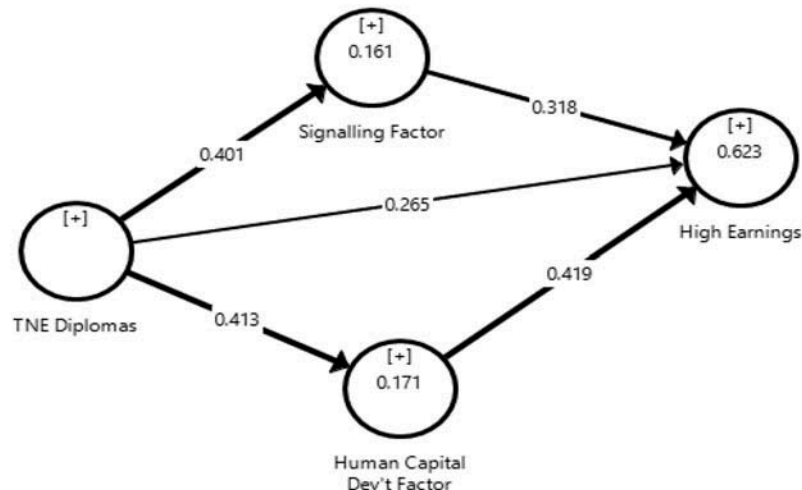
#### 4.2. Assessing reliability and validity of construct

The measures of composite reliability in the PLS software have three determinants; namely the Composite Reliability, Dillon-Goldstein's rho A and the Cronbach's Alpha. In practice, the significance of Cronbach's Alpha in determining reliability of PLS has been relegated to the lower boundaries in recent literature since its use is seen to underestimate the true reliability of the

**Figure 1. Conceptual/hypothesized path model.**



**Figure 2. Path model of both  $R^2$  values (nodes) and the path coefficient with a highlighted effect.**



**Table 1. Summary of the values for the fit**

Indicators	Meaning	Saturated Model
SRMR	Standardized Root Mean Square Residual	0.070
d_ ULS	Squared Euclidean Distance	0.670
d_ G1	Geodesic Distance 1	0.349
d_ G2	Geodesic Distance 2	0.306
$\chi^2$	Chi-Square	428.658
NFI	Normed Fit Index	0.783

constructs (Hair, Hult, Ringle, & Sarstedt, 2017; Sijtsma, 2009). For reliability to pass, all the measured values are expected to be greater than 0.70 (Dijkstra & Henseler, 2015). Again, researcher have been cautioned to ensure that the factor measurement is also free from systematic errors and systematic measurement error. This means that attempt should be made at ensuring a convergent validity, this could be done by the use of the average variance extracted (AVE) which was suggested by Nunnally and Bernstein (1994). They suggested an AVE value of 0.5 and above as the acceptable. There are two other criteria which have also been found to be informative about discriminant validity. These are the Fornell-Larcker criterion which was proposed by Nunnally and Bernstein (1994) and HTMT proposed by Kiker and Santos (1991). The Fornell-Larcker criterion says that a “factor’s AVE should be higher than its squared correlations with all other factors in the model”. For a variance-based structural equation model such as partial least square, researcher to be able to concisely discriminate between two factors, the HTMT value must be lesser than 0.90; the latter is recommended in most recent studies (Hair, et al., 2017). Finally, it is highly recommended that researchers evaluate the variance inflation factor (VIF) of the indicators of the latent variables. If the VIF values are found to be extremely higher than one (i.e. above 4) then it means that multicollinearity might be playing a significant role. The values of the reliability and validity after the SmartPLS runs are given in Tables 2–5 below;

Table 2 shows that all the dataset for the constructs passed the reliability with Cronbach’s Alpha, rho A and Composite Reliability in respect of High Earnings (0.822; 0.827; 0.882), Human Capital Development Factor (0.861, 0.862, 0.906), Signaling Factor (0.814; 0.818; 0.877), TNE Diplomas (0.830; 0.836; 0.887). The Average Variance Extracted (AVE) was used to measure the construct validity. The values measured for each variable are as follows: High Earnings (0.652),



**Table 2. Construct reliability and validity values**

Constructs	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
High Earnings	0.822	0.827	0.882	0.652
Human Capital Development Factor	0.861	0.862	0.906	0.706
Signaling Factor	0.814	0.818	0.877	0.642
TNE Diplomas	0.830	0.836	0.887	0.663

Human Capital Development Factor (0.706), Signaling Factor (0.642) and TNE Diplomas (0.663). Again, Table 3 shows the results for the discriminant validity using the Fornell-Larcker Criterion. From that table, all the variables passed the Fornell-Larcker Criterion. This is because the factor's AVE was significantly higher than its squared correlations with all other factors in the model. Table 4 also shows the results for the Heterotrait-Monotrait Ratio (HTMT) which is also used for measuring discriminant validity of the latent variables within the construct. From the table above all the values were within the acceptable range which is that for a construct to be deemed to have been valid, its HTMT values should be lesser than 0.90. Finally, Table 5 also shows the results for the Inner VIF Values of which the variance inflation factor (VIF) of the indicators of the latent variables as well as of the variables themselves are shown in the tables. From the table, all the values are much closer to Figure 1 and it is the Authors' Own Construct for the Conceptual/Hypothesized Path Model ; this means that multicollinearity has not been established making the data valid, reliable and the results acceptable.

#### 4.3. Assessment of the structural model

The structural model was assessed using the endogenous (Variable Variance Explain— $R^2$ ), Direct Effects (Path coefficient absolute size, sign; Significance p-value; confidence interval; effect size), Indirect Effect (coefficient absolute size, sign; Significance p-value; confidence interval) and the Total Effects (Coefficient (absolute size, sign; Significance p-value; confidence interval). In order to

**Table 3. Fornell-Larcker criterion values for discriminant validity**

	High Earnings	Human Capital Dev't Factors	Signaling Factors	TNE Diploma
High Earnings	0.807			
Human Capital Development Factor	0.668	0.840		
Signaling Factor	0.608	0.441	0.801	
TNE Diplomas	0.565	0.413	0.401	0.814

**Table 4. Heterotrait-monotrait ratio (HTMT) values for discriminant validity**

	High Earnings	Human Capital Dev't Factors	Signaling Factors	TNE Diploma
High Earnings				
Human Capital Development Factor	0.788			
Signaling Factor	0.743	0.523		
TNE Diplomas	0.674	0.488	0.485	

**Table 5. Inner VIF values of collinearity statistics (VIF) toward establishing discriminant validity**

	High Earnings	Human Capital Dev't Factor	Signaling Factor	TNE Diplomas
High Earnings				
Human Capital Dev't Factor	1.353			
Signaling Factor	1.337			
TNE Diplomas	1.299	1.000	1.000	

measure the significant effects, researchers should determine how substantial the effect are by assessing the effect size  $f^2$ ; if the values are above 0.02, 0.15, and 0.35. The effects could be regarded as weak, moderate and strong, respectively (Cohen, 1988). The  $R^2$  ranges from zero (0) to one (1) while 1 defines the perfect predictor. To test the significance of the values for the path coefficient, a bootstrapping would have to be done with a sample of 5000. A T-Statistics of above 1.96 and a P-Value of less than 0.05 would show that the path is statistically significant and supported (Ringle, Wende & Becker, 2015). Figure 2 shows the values for both  $R^2$  and  $F^2$  while Table 6 and Table 7 below sum up the discussed criteria for construct model assessment.

#### 4.4. Discussion of the results

This research work in Ghana confirms decades' old global realism and empirical facts that there was a strong relationship between education and labour compensations or earnings; and that, the higher you rise on the educational ladder the higher your paycheck rises (Kirby & Riley, 2008; Mincer, 1958; Walker & Zhu, 2001). For emphasis, this research focused on higher educational diplomas attained through a transnational education in Ghana either delivered directly or indirectly through a local assignee. The results above show a strong direct, indirect and a reverse effect on high earnings. In simple terms, graduates of TNE have high propensity of an upward adjustment of their salaries either through an increase in work-related responsibilities which comes along with an adjusted compensation or by just presenting the attained certificate to HR for recognition and a corresponding salary adjustments. This is consistent with the work done by both Schreiber et al. (2006) and Lien (2008) who concluded that, TNE diplomas increase the employability of the graduates both locally and abroad; consequently, up to their earnings.

Again, the results showed that the relationship is also indirect through two mediating factors; Signaling and Human Capital Development (HCD). The results showed that all the mediating factors had a statistically significant effect on earnings. In fact, the inner model ( $R^2$ ) in Figure 2 showed that Signaling and Human Capital Development alone could explain more than 62% of the variance in the earnings of a TNE Diploma holder; this is extremely significant to industry watchers. Again, early study conducted by Lien (2008) has been supported by this results. In the previous work, the researcher Lien (2008) established that, the key TNE students' enrolment motivations were to develop their professional skills and prepare

**Table 6. Results for the path coefficient of construct model**

	High Earning	Human Capital Dev't Factor	Signaling Factor	TNE Dip
High Earnings				
Human Capital Dev't Factor	0.419			
Signaling Factor	0.318			
TNE Diplomas	0.265	0.413	0.401	



**Table 7. Summary of the structural model and paths (T-STATS & P- VALUES)**

	Orig. Sampl(O)	SamplMean (M)	Standrd Deviat (STDEV)	T Stats ( O/STDEV )	P-Values	Path Supported/Not Supported
Human Capital Dev't Factor -> High Earnings	0.419	0.411	0.085	4.906	0.00	Path Supported
Signaling Factor -> High Earnings	0.318	0.321	0.075	4.228	0.00	Path Supported
TNE Diplomas -> High Earnings	0.265	0.263	0.073	3.657	0.00	Path Supported
TNE Diplomas -> Human Capital Dev't Factor	0.413	0.410	0.096	4.311	0.00	Path Supported
TNE Diplomas -> Signaling Factor	0.401	0.398	0.097	4.122	0.00	Path Supported

themselves for future career progression. Which means that, students understand that, their potential future earning heavily depends on their performance after acquiring the TNE certificates. The situation is not the same at the other end of the model. The inner models of both Signaling and HCD were weak with TNE Diplomas had a weak influence on the variance of 16.1% and 17.1%, respectively. This means TNE Diplomas have very little explanations on the variances of both Signaling and HCD while other factors which are yet to be determined have a significant influencing role on them. Again, a reverse effect seen in the relationship between TNE Diplomas and high earnings could be as the results of very expensive tuition fees rate, only those who are already on high earnings could afford to pay and complete such programmes in Ghana. Finally, the path coefficient expressed is significant for all the paths however, HCD to high earnings was the highest.

## 5. Conclusion and recommendations

This research posits that the value of the TNE Diplomas in Ghana is in its ability to deliver the requisite knowledge, ability and skills to its students so that they could perform at their workplaces of which a performance-adduced compensation would be merited. The inherent signals of good education it brings adds to its overall appeal. But whether education endows an individual with human capital, or acts merely as a signal of existing human capital, the fact remains that wages are an increasing function of educational attainment. In other words, an individual's decision to pursue a TNE diploma depends on nothing more than the established positive correlation between education and earnings, upon which both signaling theory and human capital theory depend.

### 5.1. Implications and recommendations

This research posits an overall good outlook for TNE in Ghana. This means that the demand for TNE will continue to increase as long as students continuously receive the expected learning outcomes and earnings in the labour market. To this end, management of higher education institutions in receiving countries as well as the policy makers within the educational space in those countries must put in place a requisite enactment to help guide the growth of TNE which is increasingly addressing the skills gap in developing countries.

Because data collection was set within a successfully managed TNE arrangements in Ghana, this research is therefore, limited to only TNE arrangements where the host institutions originate from the United Kingdom. This study recommends that future study could focus on gathering data from all TNE receiving institutions in Ghana. Secondly, this research recommends that future research attention could be devoted to establishing the real impact of the TNE on teaching and learning at the receiving institution.

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