

## **A Look Into the Underlying Structure of the Items that Make up the Organisational Excellence and Transformational Leadership Scales in Higher Education Institution in Nigeria**

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### **Abstract**

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There had been an increase interest in organisational excellence in higher education institutions worldwide due to reduced government involvement and corporatisation of HEIs. Transformational leadership had also been found to be necessary for the new challenges faced by these institutions. This researched aimed at investigating the structure of the items that make up the organisational excellence scale and transformational leadership scale with respect to HEIs. A data of valid 190 questionnaires from respondents who were group leaders in polytechnics of the North-Central and South-Western geopolitical zones of Nigeria were used as collected through multistage sampling. A factor analysis was conducted with SPSS 20. After iterations, it was found that eighteen out of the twenty-one items of organisational excellence could validly be used for further research while fourteen out of the fifteen items from transformational leadership scale were valid for further analysis of Polytechnics in Nigeria. These items were recommended for adaptation and application on related research

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### **1.1 Introduction**

With the advent of industrial revolution which brought mechanization, automation and mass production, craftsmanship has dwindled over time thereby raising concern for quality products. Out of this concern, the Union of Japanese Scientist and Engineers (JUSE) facilitated activities related to improvements in quality with the invitation of Dr. Deming in the 1950 and subsequent invitation of Dr. Juran to arrive at what they called total quality management (Patwardhan, 2007).

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Further impetus was given to the search for quality products and performances with the publication of Peters and Waterman's (1982) *In Search of Excellence*. Countries and organizations also promoted this search for quality and organizational excellence through different excellence awards like Deming Prize in Japan; America's Malcolm Baldrige National Quality Improvements Act of 1987 as well as the European Foundation for Quality Management in Europe (MBNQA Act, 1987; EFQM, 2014) which other countries have domesticated (Klefsjo, Bergquist & Garvare, 2008; Talwar, 2011). These efforts were aimed at World Class status for organizations, including higher education institutions, which were operating in these countries.

The extension of this need for continuous improvements in the higher education institutions (HEIs) was brought about by the reduction in per capita funding from government; competition over the increase in admission of non-traditional students; demand for value for money and concern for accountability (Hodgkinson & Brown, 2003). The importance of continuous improvements in HEIs had been recognized by Barnett (1992) with his distinction between management of education for quality and management of quality in education. Lomas (2004) agreed with Barnett when he argued for quality enhancement over and above the hitherto focus on quality assessment in higher education institutions and extended the argument by asserting that transformational leadership is a necessary sine qua non for excellent performance of the HEIs. Transformational leadership, he argued, will bring about innovation and originality; guidance for and earning of commitment from staff of these higher education institutions.

Yokoyama's (2006) studied the interactive effect of entrepreneurship, management, governance and leadership in Japanese and UK universities. The study showed how transformational leadership impacted on organisational excellence in these HEIs.

## 1.2 Problem Statement

Stakeholders have raised concern over the dwindling performances of HEIs in Nigeria as epitomised by the alarm raised by the President of Nigeria on the low level of sectoral contributions of higher education institutions to the general development of the country. He emphasised the need for transformation in Nigerian education system by averring that.....a sound education system is key to the transformation of Nigeria's economy to make it competitive... Transformation is not just another slogan.

We cannot tolerate the attitude of “business as usual”. Let me assure you that our decision to support the education sector is resolute. We will continue to work until our universities become centres of excellence. Vanguard Jan, 30, 2012).

Researchers had studied the nature, processes and impacts of organisational excellence. Study by Denis and Rodney (2002) was conducted to determine the impact of organisational excellence model on organisational and strategic decision making. While Yokoyama’s (2006) work investigated the effect of leadership in interaction with other factors in Japanese and UK universities, but the research did not explore the structure of the items that make up for leadership in these HEIs.

This paper aims to investigate the structure of items in transformational leadership and organisational excellence scales in HEIs with particular reference to publicly-owned Polytechnics in the North-Central and South-Western Nigeria.

### 1.3 Research Questions

The research questions to answer are

- (1) What is the underlying structure of the items that make up the organisational excellence scales in HEIs?
- (2) What is the underlying structure of the items that make up the transformational leadership scale in HEIs?
- (3)

### 1.4 Scope

The scope of this study was limited to the higher education institutions in Nigeria. With a three-tier level of education which comprised basic, secondary and higher education sector (FME, 2014); only the Polytechnic segment of higher education was considered. There were twenty-one and thirty-eight Federal government-owned and state government-owned polytechnics (public polytechnics) respectively and twenty-two privately-owned Polytechnics (NBTE, 2014). All these are spread over the six geopolitical zones of Nigeria. Only those public polytechnics in the North-Central and South-Western geopolitical zones were studied. The study covered only academic staff who were heads of groups in these institutions.

They were deans and deputy deans of academic and service units, heads of department, heads of units, director of institutes and centres, et cetera.

## **2.0 Literature**

### 2.1 Organisational Excellence

Due to the restricted form in which total quality management had been used for improvement in organization with respect to competitiveness, efficiency and profitability; attention had shifted to business excellence which was aimed at widening nature of requirements for quality performances by organisations (Klefsjo, Bergquist & Garvare, 2008). Peters and Waterman (1982) defined organisations that were "...adroit at continually responding to change of any sort in their environment" as excellent organisations. These organisations achieved excellence through the exertion of extra-ordinary energy above and beyond the call of duty. It was also defined as outstanding practices used in an organisation to manage it to achieve results (EFQM, 2014).

When an organisation efficient satisfied of all stakeholders to it in a sustainable way, such organisation practices organisational excellence. It meant that not only customers were satisfied through improvements in operations (operation excellence) but all stakeholders. Organisational excellence focused on two major activities viz: satisfaction of stakeholders and; sustainability of satisfying the stakeholders in the future through continuous improvements.

The Malcolm Baldrige National Quality Award education criteria for performance excellence stipulated excellence in HEIs in form of people, students, faculty and staff focus, process management focus and organisational results focus (Badri, Selim, Alshare, Grandon, Younis, & Abdulla, 2006). This can be contrasted to Burrows (1999) stakeholder focus by HEIs for excellence while analysing the framework for profiling HEIs stakeholders. Peters and Waterman (1992) stipulated the eight back to basics of excellent organisations.

Bou-Llusar, Escrig-Tena, Roca-Puig & Beltran-Martin (2008) instrument was adapted from European Foundation for Quality Management (EFQM) excellence criteria. Of the thirty-two items scales of result criteria developed, only twenty-one of them were adapted because they had Cronbach's Alpa result of more than .5.

## 2.2 Transformational Leadership

Burns (1978) distinction between transforming leadership (later refined as transformational leadership) and transactional leaders was amplified and improved upon by Bass and Avolio (1994). A transformational leader stimulated interest among followers and colleagues by making them to have a perspective view of their work differently their former perspective (Bass & Avolio, 1994; Bass & Bass, 2008).

Behling and McFillan (1996) synthesised charismatic and transformational leadership in form of demonstration of empathy; empowerment of followers; projection of self-assurance; dramatisation of organisational mission and; affirmation of collective efficacy as the hallmarks of transformational leadership. In fact, they equated charismatic leadership to transformational leadership.

From the four correlated dimensions of transformational leadership identified by Avolio, Bass and Jung (1999), an additional dimension has been added by (Rafferty & Griffin, 2004). Thus, personal recognition dimension had been added to the four correlated dimensions of idealised influence; individualised consideration; inspirational motivation and; intellectual stimulation behaviours.

This not only helped in providing opportunity to accommodate other variables in the thesis it also prevented discouragement in response which was sometimes caused by too long a questionnaire with many items.

Rafferty and Griffin (2004) operationalised transformational leadership through a combination of items on vision, inspirational communication, intellectual stimulation, supportive leadership and, personal recognition. Fifteen items were adapted for this study to measure transformational leadership construct because they had more than .5 Cronbach's alpha result while only one item had a reversed-scoring.

## 3.0 Methodology

The population of this study comprised all academic staff of public Polytechnics in Nigeria. The population is twelve thousand, nine hundred and thirty-eight as presented by Shu'ara (2010). The sample size was three hundred and seventy-five based on Krejice and Morgan (1970) recommendation.

The sampling design was based on multistage sampling method. The population was first aggregated and clusters of the elements were based on two geo-political zones (North-Central and South-West). This was later divided into strata based on position occupied in the institution. There was systematic selection of public polytechnics from each of the two geopolitical zones. After this, there was a random sample of the elements from each strata. This was used to ensure that every element of the strata had known and equal chance of being selected from the population so as to prevent bias against any member of the population strata to make the result obtained generalisable (Sekaran & Bougie, 2013).

#### **4.0 Results and Discussions**

Three hundred and seventy-five questionnaires were distributed while two hundred and sixty-two were returned representing 69.87% response rate. Seventy-two were either badly filled or contained more than 15% missing data remaining only one hundred and ninety valid questionnaires for analysis. The data was cleaned and screened before further analysis.

The profile of the respondents showed majority falling between age of 40<60 with 55%; 20<40 is 41.6% while 60yrs and above is 3.2%. Males constituted 83.4% of the sample while females were 16.4%. Deans/directors were 7.9% while heads of department, units, institutes and centres were 51.6%. Heads of committees and those that deputise were 40.5%. Those that had served in HEIs for 0-10yrs were 50.5%; while those that had served between 10-30yrs were 46.4% remaining 3.1% for sample with length of service from thirty years and above.

Respondents with degree or postgraduate diploma were 34.4% which was lower than those with masters degree (60.8%) but greater than those with MPhil/PhD (4.9%). Those below senior lecturers were 60.3%; followed by 25.5% of Chief lecturers and principal lecturers who were more than 14.1% of senior lecturers. Respondents with between 5-20 subordinates were approximately half (49.1%) while those with between 21-40 subordinates followed with 29.7% which was higher than 21.1% of respondents with 41 and above subordinates.

##### **4.1 Answer to the Research Questions**

To answer the research questions, an exploratory factor analysis was conducted for each of the two variables using each as a unidimensional variable.

This was done to satisfy the principle of parsimony in research. The data for factor analysis must satisfy the criteria of sample size and be of interval scale (Hair *et al.*, 2010; Tabachnick & Fidell, 2014). In this study, all of the variables used (except the demographic variables which were not of primary concern for the immediate analysis) were measured using an interval scale in form of Likert's 7point scale.

The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA) test and Bartlett's test of sphericity were used to test the suitability of proceeding with factor analysis. Decision for KMO is .90 or above- marvelous; .80 or above- meritorious; .70 or above- middling; .60 or above- mediocre; .50 or above- acceptable but miserable; and below .50- unacceptable. If the Bartlett test value was significant (that is, its associated probability was less than .05)

#### 4.1.1 Factor Analysis on Organisational Excellence

Exploratory factor analysis for organisational excellence was exhibited in Table 1a below. Three items (items 9, 11 & 16) were deleted because they loaded below the acceptable level of .5. Other items loaded between .547 and .785.

**Table 1a: Factor Analysis for Organisational Excellence**

ITEM	Factor Loading
Through deliberate and conscious effort of my institution, knowledge of efficient operation management has improved among staff in my institution	.785
My institution has become more efficient in the discharge of its responsibility to students	.758
My institution has become more efficient in the discharge of its responsibility to staff	.734
Staff have high commitment to my institution	.730
Staff share the values of my institution	.711
Staff opinions are being used to improve work performance in my institution	.706
The services provided by my institution has improved students' satisfaction	.704
Staff are willing to work extra time with a view to achieving the goals of my institution	.695
Staffs are willing to identify and provide solution to work problems in my institution	.693
My institution has been able to attract more students interested in seeking for offer of admission	.667
Staffs in my institution always show high level of initiative	.653
Companies, institutions et cetera are now willing to give consultancy jobs to my institution	.619
The activities of my institution have reduced the crime rate in the environment	.617
My institution has contributed to socio-economic development of the immediate society.	.617
The society in which my institution is located has benefited from modernity through the activities of my institution	.603
My institution has been able to drastically improve its revenue base apart from the subvention from government	.597
Communication with students in my institution has improved over time (e.g. SMS, students' e-mail services, robust and interactive institution portal et cetera)	.568
Services provided to students are better in my institution than other similar institutions	
Eigen Value	8.083
Percentage of variance explained	44.910
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.900
Bartlett's Test of Sphericity	Approx. Chi-Square
	Df
	Sig.
	1780.149
	153
	.000

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

The result in the same Table 1a above indicated that the Kaiser- Meyer-Olkin (KMO) measure of Sampling Adequacy (MAS) for organisational excellence showed the value of .900 which was marvelous and appropriate for factor analysis (Hair *et al.*, 2010; Pallant, 2013; Tabachnick & Fidell, 2014).

From the observed value of Bartlett's sphericity, the result showed that the value was large (1780.149) with associated significance level of 0.000 which was very low. Thus, both results (KMO measure of sampling adequacy and Bartlett's test of sphericity) demonstrated that the items remaining obviously met the conditions for factor analysis.

Since this factor analysis was conducted through principal component analysis using Kaiser normalisation, the requirement was that any PCA result with an eigen value of more than 1.0 meant the data was significant and could be used for extracting factors (Hair *et al.*, 2010).

Although there were four factors that loaded with an eigen value of greater than one, the Scree plot showed that the plot sloped steeply downward from first factor to second factor before it slowly became approximately horizontal. Thus, based on the forced one factor extraction, the minimum factor loading after one component extraction showed a factor loading from .547 and .785.

The table 1b below showed the summary of organisational excellence variable before and after item deletion.

**Table 1b: Summary of Organisational Excellence Variable Before and after Item Deletion**

Variable	No of Items Before Deletion	No. of Items Deleted	No. of Items after Deletion	Reasons for Deletion
Organisational Excellence	21	3	20	Low Loading

The table 1b showed that organisational excellence variable had twenty-one items while three items were deleted after one factor extraction leaving eighteen items. The three items deleted were the questions nine, eleven and sixteen due to factor loading below .5.

#### 4.1.2 Factor Analysis on Transformational Leadership

Exploratory factor analysis for transformational leadership was exhibited in Table 2a. One item that had small factor loading (< .50) was deleted.

Items that loaded from .607 to .883 were retained, as shown in Table 2a.

The result in Table 2a indicated that the Kaiser- Meyer- Olkin (KMO) measure of Sampling Adequacy (MAS) for transformational leadership showed the value of .918 which was marvelous and appropriate for factor analysis (Hair *et al.*, 2010; Pallant, 2013; Tabachnick & Fidell, 2014).

**Table 2a: Factor Analysis for Transformational Leadership**

Item	Factor Loading
I always ensure that the interests of staffs are given due considerations	.883
If the quality of work of my subordinate improves, I acknowledge such improvements	.848
I behave in a manner that is thoughtful of my subordinates' needs	.812
I personally compliment my subordinates whenever they do an outstanding work	.807
I have a clear understanding of where we are going	.802
Before I act, I consider the feelings of subordinates towards that action	.799
I always challenge my subordinates to always think about old problems in new way so as to solve them	.789
I say things that make academic staffs feel proud to be part of this institution	.778
I have a clear sense of where I want this institution to be in the next four years	.769
Whenever any of my subordinates does a better than average job, I always commend such act	.769
Whenever there is a change in the system of operation, I always encourage the staff to see the change as being full of opportunities instead of threats	.747
Work units always get positive comments from me	.693
I had ever proposed ideas to my subordinates that forced them to rethink some things that they had never questioned before	.661
I had being challenging my subordinates to rethink some of their basic assumptions about their work	.607
Eigen Value	8.346
	59.617
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.918
Bartlett's Test of Sphericity	Approx. Chi-Square
	2005.880
	Df
	91
	Sig.
	0.000

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

From the observed value of Bartlett's sphericity, the result showed that the value was large (2005.880) with associated significance level of 0.000 which was very low and appropriate.

Thus, both results (KMO measure of sampling adequacy and Bartlett's test of sphericity) demonstrate that the items remaining obviously met the conditions for factor analysis. Since this factor analysis was conducted through principal component analysis using Kaiser normalisation, the requirement was that any PCA result with an eigen value of more than 1.0 meant the data was significant and could be used for extracting factors (Hair *et al.*, 2010).

Although there were two factors loading with an eigen value of greater than 1, the Scree plot showed that the plot sloped steeply downward from first factor to second factor before it slowly became approximately horizontal. Thus from table 2a, the minimum factor loading after one component extraction showed a factor loading from .607 to .883. The total variance explained by the one component factor extracted was 59.617%.

The table 2b below showed the summary of transformational leadership variable before and after item deletion.

**Table 2b: Summary of Transformational Leadership Variable Before and after Item Deletion**

Variable	No of Items Before Deletion	No. of Items Deleted	No. of Items after Deletion	Reasons for Deletion
Transformational Leadership	15	1	14	Small Loading

The table 2b showed that transformational leadership variable had fifteen (15) items while one item (I have no idea of where my institution is going) was deleted after factor extraction leaving fourteen items. The one item deleted was due to small factor loading of  $<.5$ .

## 5.0 Conclusion

The analysis above showed the unidimensional measure for organisational excellence and transformational leadership variable each. Tests were conducted to determine the structure of the items in each of the variable. It can be concluded that using eighteen out of the twenty-one items in measuring organisational excellence in Nigerian polytechnics will provide a valid measurement for further analysis.

Also, it was discovered that using fourteen out of the fifteen items on transformational leadership will serve the same purpose. These results had provided a valid basis for studying organisational excellence and transformational leadership in Nigerian polytechnics.

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