



The mediating role of a quality academic process on the relationship between distributed leadership and the effectiveness of public universities in Nigeria

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Abstract

The purpose of this study was to determine the relationship between distributed leadership, a quality academic process, and institutional effectiveness as well as the mediating role of the quality academic process on the relationship between distributed leadership and institutional effectiveness in public universities in Nigeria. The study built on the research conducted by Calvo-Moral, Leal and Roldan in 2006 on a quality educational process based on a European quality management model. A survey of 346 lecturers from public universities in Nigeria was used to validate this model. The data collected were analyzed using the Smartpls software. The results confirmed that the three main constructs for this study were second order. It was also evident that there was a positive significant relationship between distributed leadership, the quality academic process and institutional effectiveness. The findings also revealed that distributed leadership practices can enhance the effectiveness of public universities through a quality academic process. This study was limited to public universities in Nigeria and as such further research could be carried out to involve private universities. Based on the outcomes of this study, to enhance university effectiveness, university leaders should be proactive in undertaking measures that will bring about a quality academic process.

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Introduction

The effectiveness of the university system has been a matter of deep-seated theoretical interest and it is one of the matters that have continuously been of concern in any organizational discussion (Kaffashpoor, 2013). According to Dabalen, Oni, and Adekola (2001), the potential for employment among universities graduates has deteriorated over time and this has been attributed to poor training and low competency, most especially in written, as well as oral communication, which has resulted in many graduates being unproductive in their jobs. The inadequate practical and technological

competencies of these graduates constitute a huge knowledge gap. This was reported by NUC (2004) in a study on the evaluation of the expectations of university graduates by employers of labor. The results of that study showed that many unemployed graduates were roaming the streets and more embarrassingly, those who were fortunate to get employment had to go through remedial training with the intention of bridging the huge knowledge and skills gaps left over from their university education.

As noted by Soludo (2012), the employment problem in Nigeria is not that there are no jobs but rather that there are no competent individuals to do the jobs. According to Soludo, university education occupies a superlative position as drivers of change and improvement in any given economy, most especially considering its major themes of focus which include teaching, research, and community service. Unfortunately, the university system in many countries has failed, especially in the content area in terms of academic process which according to

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Olasehinde-Williams (2012), has been compromised by university leaders, lecturers, administrative staff, students, and even the government. Leadership and quality academic processes in the university system cannot be separated because they actually complement each other, as leadership is a good determinant of quality academic processes. Hence, the following questions were considered necessary to be addressed in this study:

- What is the relationship between distributed leadership, a quality academic process, and institutional effectiveness?
- Does a quality academic process mediate the relationship between distributed leadership and institutional effectiveness?

Literature review and hypotheses development

Concept of Distributed Leadership

In modern times, the distributed leadership concept has been well-linked to alternate, leader-centric conventional leadership models which advocated that leadership is not an individual but a collective property (Bolden, Petrov, & Gosling, 2009). Distributed leadership focuses on how leadership is shared within organizations like schools by several individuals, who engage in leadership with others or by themselves in some unpredictable ways at peculiar times (Spillane, 2006). Under this view, “leadership practice (as both thinking and activity) emerges in the execution of leadership tasks in and through the collaborations among the followers, leaders, and the situations” (Spillane, Halverson, & Diamond, 2004, p. 27). Such division of labor can occur in a variety of ways; multiple leaders may perform the same function together, perform the same functions in two different contexts simultaneously, or divide functions based on expertise and availability.

Institutional Effectiveness

Effectiveness is the capability of producing a desired result and as such, institutional effectiveness has been defined by SACS (2005), as the explicit, organized, and documented procedures for measuring performance against stated school goals, mission, and other related criteria such as student learning outcomes for educational programs.

The methods of measuring the effectiveness of the university include: the goal approach, the system resource approach, the internal process approach, the human relations approach, and the multiple constituencies approach (Ashraf & Kadir, 2012; Kayode, Yusoff & Veloo, 2014). The current study is based on goals and the multiple constituencies approaches. The goals approach concentrates on output to discover the indispensable functional objective which includes innovation, benefit, and the quality of the product (Schermerhorn, Hunt, Osborn, & Osborn, 2004). This method is considered favorable when the organizational goals are well-defined, overt, consensual, assessable, and have a time frame. Nevertheless, this approach is frequently appropriate for an institution that is accountable for its goals as well as confirmation of its comprehensive societal responsibility. The multiple constituent approach on the other hand, assess the effectiveness of the university system considering the impact of the university system on the major stakeholders and all that concerns them.

In this study, institutional effectiveness was measured vis-à-vis student and societal development. The student development measures assess the attribute university graduates are expected to possess in terms of moral, practical, and intellectual skills. The societal development on the other hand was expressed as contained in the National Policy on Education, Federal Republic of Nigeria (2004) where the main goals of government investment in education are for society or for national development. As such, the impact of the university system on society in terms of the quality of the graduates produced and the ability of the university system to affect the stakeholder positively is of paramount importance (Kayode et al., 2014).

Concept of Quality Academic Process

A quality academic process consists of all school-based classroom and outside classroom training that enhances the students’ knowledge and understanding. Psomas, Fotopoulos, and Kafetzopoulos (2011) examined the level of process management in certified companies. Using exploratory factor analysis, two factors were extracted from the process management construct which they termed core process management and the supporting quality tools. Core process management is applied to terms in this study of the quality academic process which encompass all activities related to classroom instructions and field practices.

Therefore, this study identifies education and the research process in study as the dimension for the quality academic process. This is consistent with the lean higher education (modified 11 June 2015) dimension of the quality academic process in higher education which includes course design, teaching, improving degree program, student feedback, and handling of assignments (Emiliani, 2005). Therefore, the quality academic processes in this study are examined vis-à-vis the curriculum, instruction, service learning, assessment, and research.

Relationship between Distributed Leadership and Institutional Effectiveness

The study carried out by Papademetriou (2012) on the role of distributed leadership on school effectiveness and improvement among elementary schools in a district of Cyprus in Paphos revealed that distributed leadership is a kind of leadership that brings about improvement in students’ outcomes, and organizational effectiveness and job satisfaction among teachers. Furthermore, Obadara (2013) in his study examined the relationship between distributed leadership and sustainable school improvement among 200 public secondary schools in Lagos State, Nigeria and reported there were significant relationships between distributed leadership and school goal achievement, teachers’ professional development, instructional program management, effective teaching and learning, and promotion of a school climate.

However, some studies indicated that there was no direct relationship between distributed leadership and school effectiveness. According to Shakir, Issa, and Mustafa (2011), the prevailing distributed form of leadership in schools on Pulau, Malaysia does contribute to the effectiveness and

improvement of the school. This inconsistency in the findings of the relationship between distributed leadership and institutional effectiveness requires further attention. This brings us to the first hypothesis:

H1: Distributed leadership has a positive and significant relationship on institutional effectiveness

Relationship between Distributed Leadership and Quality Academic Process

In education generally, leadership has been perceived by policy makers and stakeholders as a key role player in improving the quality of educational institutions (Organisation for Economic Co-operation and Development [OECD], 2011). The adoption of a customer-focused management approach, however, calls for the “participation of all members” of a college or university, and presents a unique challenge to leaders who wish to transform their institutions.

A precise definition of leadership in a total quality management environment may be difficult to formulate, but its importance and presence would be hard to ignore (Aljodea, 2012). Moreover, Seldin (1990) argued that quality teaching can be enhanced by university leaders by providing necessary equipment, facilities, and classroom supplies when needed. It is also essential for the university administrators to understand when to boost lecturer’s morale and correct necessary environmental shortcomings. However, Seldin concluded that outstanding teaching can only be encouraged when suitable rewards are provided to the lecturers. For there to be improvement in the university teaching programs, Felder and Brent (1999) stressed that at each stage of the enhancement exercise, there must be teamwork and cooperation among the lecturers who will put it into action and the leaders who are expected to make available the needed resources. It is therefore imperative for the university leaders in their various capacities to make available incentives for lecturers in terms of salary supplements, equipment, and travel grants, as well as by promotion with the intention of improving teaching and learning in the school. Hence, the second hypothesis is:

H2: Distributed leadership has a positive and significant relationship on a quality academic process

Impact of Quality Academic Processes on Institutional Effectiveness

As argued by Rautopuro and Vaisanen (2001), it is indisputable that quality teaching enhances student learning as well as inspiring improvement in both the general competencies and specialist knowledge demanded by society and in a working life in this modern era.

In a study carried out by Rahman, Ng, Sambasivan, and Wong (2013), employees undergoing training regarding managerial skills and the process can assist in enhancing the effectiveness of the establishment as well as knowledge attainment, knowledge protection, and knowledge application which interact with the training and expertise of employees in the managerial process to increase the effectiveness of the organization. According to Hitt, Haynes, and Serpa (2012), due to the recent global competitive environment, there is need for organizations as well as universities to be ground breaking and

innovative in their activities. This indicates that universities in Nigeria and globally should be proactive in discovering existing opportunities in order to produce graduates and services that will meet the demands of its external community (Alvarez & Barney, 2007). Thus the third hypothesis is:

H3: A quality academic process has a positive and significant relationship on institutional effectiveness

Mediating Role of Quality Academic Processes

Leadership influence can be seen in three dimensions: direct effects, indirect effects, and reciprocal effects. However, all three of these dimensions can be perceived in the universities’ leadership work but indirect effects are the greatest and most frequent of all because leaders cannot perform their duty without others and through others. Effective leaders exercise their work directly by means of their indirect impact which is achieved via a series of processes and strategies (Southworth, 2013). In a study conducted by Arjomandi, Kestell, and Grimshaw (2009), the curriculum of the program, students’ assessment, service learning, and staff professional training were the core activities that could influence the output of the university system.

According to Hallinger and Heck (2010), several studies that were carried out to examine how the student outcome is influenced or affected by the school leaders have revealed unconvincing outcomes while studies that take into consideration a mediating or moderating variable are more inclined to produce a significant effect. Therefore, this study involved all mediating variables as a single construct. Thus, the mediation hypothesis is tested:

H4: A quality academic process will mediate the relationship between distributed leadership and institutional effectiveness

The research framework is shown in Figure 1.

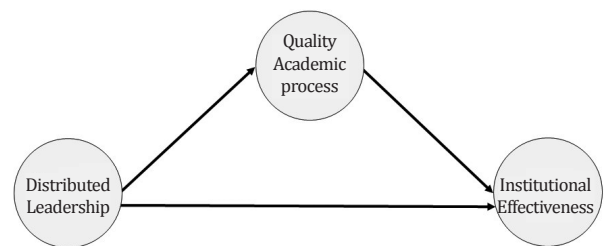


Figure 1 Research framework

Methods

Population and Sample

This study adopted a quantitative survey research design. The population for this study comprised all 37,504 lecturers in the 79 public universities in Nigeria. Using G-power analysis, 450 participants were considered as the sample size for this study. A multilevel mixed sampling technique (Cohen, Manion, & Morrison, 2011)) was used to select the participants. A systematic sampling technique was used to choose five faculty members from each of the 90 faculties in the 10 sampled universities.

Measures and instrument development

A survey was used to obtain information from the sample. Three research instruments were designed for this study: 1) a distributed leadership inventory (DLI) developed by Hulpia, Devos and Rosseel (2009); 2) a quality academic process questionnaire (QAPQ) adopted from Kayode, Yusoff and Veloo (2016); and 3) an institutional effectiveness questionnaire (IEQ) adopted from Pihie and Mahyuddin (2008) and FRN (2004).

Data analysis and results

The data collected for this study were analyzed using the Smartpls software version 3.1.2 (Ringle, Wende & Becker, 2015) based on partial least squares structural equation modelling (PLE-SEM). The analyses were undertaken in three stages: assessment of the measurement model, higher order constructs, and the structural model.

Results of the measurement model

Reliability

The reliability of the measurement items was assessed using the outer loadings of each construct measures, the Cronbach alpha, and the composite reliability. As shown in Table 1, all the loadings for the respective constructs are above .7 except for two items with .681 and .689 which according to Chin (2010) are acceptable. The composite reliability for all the constructs as shown in Table 1 is in the range .803–.955 which are above the minimum value of .707 as suggested by Hair, Hult, Ringle, and Sarstedt (2014) which shows that the items are reliable.

Table 1 Psychometric properties for first order construct

Construct	Item	Loading	Composite reliability	Average variance extracted
Leadership Function	LF1	.683–.87	.927	.646
Participative Decision Making	PDM1	.726–.853	.908	.621
Cooperation within the Leadership Team	CLT1	.811–.875	.935	.706
Curriculum	CUR1	.803–.896	.967	.728
Instruction	INST1	.77–.797	.824	.61
Assessment	ASS1	.875–.909	.941	.798
Service Learning	SL1	.828–.903	.959	.768
Research and Development	RD1	.881–.917	.929	.814
Student Development	STD1	.852–.908	.962	.739
Societal Development	SOD1	.706–.893	.951	.685

Table 2 Heterotrait-monotrait ratio of correlations (HTMT)

	ASS	CLT	CUR	INST	LF	PDM	RD	SL	SOD	STD
ASS										
CLT	0.639									
CUR	0.729	0.613								
INST	0.886	0.724	0.838							
LF	0.414	0.577	0.411	0.477						
PDM	0.498	0.815	0.459	0.626	0.622					
RD	0.811	0.602	0.706	0.863	0.401	0.486				
SL	0.673	0.489	0.628	0.891	0.26	0.4	0.697			
SOD	0.745	0.658	0.798	0.814	0.415	0.556	0.737	0.641		
STD	0.742	0.594	0.776	0.805	0.321	0.439	0.702	0.574	0.872	

Convergent and discriminant validity

The factor loadings and the average variance extracted (AVE) were assessed to determine the convergent validity. As shown in Table 1, all the loadings are above the recommended value of .6 by Chin (2010). The AVE values were between .583 and .791 which are greater than the threshold value of .5 (Hair et al., 2014). Therefore, convergent validity can be said to be achieved in this study. Furthermore, the heterotrait-monotrait ratio of correlations (HTMT) (Henseler, Ringle, & Sarstedt, 2015) was employed to assess the discriminant validity of the constructs.

According to Henseler et al. (2015), the Fornell-Larcker criterion and cross loadings do not really detect the lack of discriminant validity in common research situations and as such they recommend the use of HTMT for assessing discriminant validity. According to Henseler et al. (2015), if the HTMT value is below .90 in two reflective constructs, discriminant validity is said to be established. This study assessed the discriminant validity as seen in Table 2; and the HTMT values are between .26 and .89 which are less than .90. As such, the HTMT inference criterion indicate that all the HTMT values are significantly different from 1. Therefore, discriminant validity has been established.

Assessment of Higher Order Construct

As the three variables for this study are multi-dimensional constructs, it was necessary to assess the validity of the second order construct (reflective-reflective). As shown in Table 3, the AVE and composite reliability values are above the threshold value of .7 and .5 respectively. Therefore, the second order construct validity is said to be valid and reliable.

Table 3 Assessing the hierarchical model of experimental value for second-order construct

Construct	Composite reliability	Average variance extracted
Distributed leadership	0.892	0.733
Quality academic process	0.924	0.709
Institutional effectiveness	0.953	0.91

Result of the Structural Model

This aspect of analysis according to Hair et al. (2014) is expected to examine the path coefficient in the structural model, the coefficient of determination (R^2), and the predictive relevance as well as importance performance matrix analysis. The most commonly used measure to evaluate the structural model according to Hair et al. (2014) is the coefficient of determination known as the R^2 value. The coefficient represents the exogenous latent variables' combined effects on the endogenous latent variable. The R^2 value for IE=.681 which is considered substantial while QACP has an R^2 value of 0.349 which is considered moderate by Cohen (1988). Therefore, this model can be adjudged to be a good model.

Using the Cohen (1988) rule of thumb, f^2 values of 0.02, 0.15 and .35 are adjudged to be of small, medium, and large effect size, respectively. The effect size values revealed that distributed leadership had a small effect on institutional effectiveness amounting to 2.6 percent, and it had a large effect on the quality academic process amounting to 53.7 percent. Furthermore, the quality academic process had a large effect on institutional effectiveness amounting to 5.6 percent.

Predictive relevance is a measure used to assess the relative predictive relevance of a predictor construct on an endogenous construct. The predictive relevance was .41 and .18 which indicated that the diversity of data that can be explained by the model is 41 percent and 18 percent for institutional effectiveness and quality academic process, respectively. As the values are greater than 0, the model is said to have predictive relevance (See Table 4).

Hypotheses testing

Table 4 presents the results of the structural model. Distributed leadership had a positive relationship with the quality academic process ($\beta = 0.114, p < .01$); Distributed leadership ($\beta = 0.114, p < .01$) and the quality academic process ($\beta = 0.753, p < .01$) were also positively related to institutional effectiveness, explaining 68.1 percent of the variance. Thus, H1, H2, and H3 were supported. A closer examination of the model revealed that the quality academic process was the key predictor of institutional effectiveness.

In order to test for the mediating role of the quality academic process on the relationship between distributed leadership and institutional effectiveness, a bootstrapping approach of 5,000 resamples was used (Hair et al., 2014). The results of the analysis indicated that the quality academic process significantly mediated the relationship between distributed leadership and institutional effectiveness ($\beta = 0.445, p < .01$).

Importance-performance matrix analysis

According to Hair et al. (2014), the importance-performance matrix analysis is described as a distinction of total effects (importance) and the average values of the latent variable scores (performance) in order to identify the significant areas for improvement of management activities or the specific focus of the research model. As revealed in Figure 2, the quality academic process exhibits both the highest importance and performance towards the effectiveness of public universities.

Discussion

This research explored the mediating role of the quality academic process on the relationship between distributed leadership and the effectiveness of public universities in Nigeria. The findings of this study revealed that distributed leadership and quality academic process have a great influence on the effectiveness of public universities in Nigeria.

The first research question that was raised to examine the relationship between distributed leadership, the quality academic process, and the institutional effectiveness of public universities in Nigeria was answered with the alternate hypotheses: H1, H2, and H3. The first alternate hypothesis which stated that there is a positive relationship between distributed leadership and institutional effectiveness was supported. This means that an improvement in leadership distribution in the selected universities will bring about a 55.6 percent increase in their effectiveness. This study is consistent with previous studies such as Shakir et al. (2011), Papademetron (2012), and Obadara (2013).

Table 4 Hypothesis testing

Hypothesis	Relationship	Path coefficient	t Value	Result	R^2	f^2	Q^2
H1	DL -> IE	0.114	2.951***	Supported	.681	.026	.41
H2	DL -> QACP	0.591	14.572***	Supported	.349	.537	.18
H3	QACP -> IE	0.753	22.140***	Supported		.056	
H4	DL->QACP->IE	0.445	3.275***	Supported			

*** $p < .01$

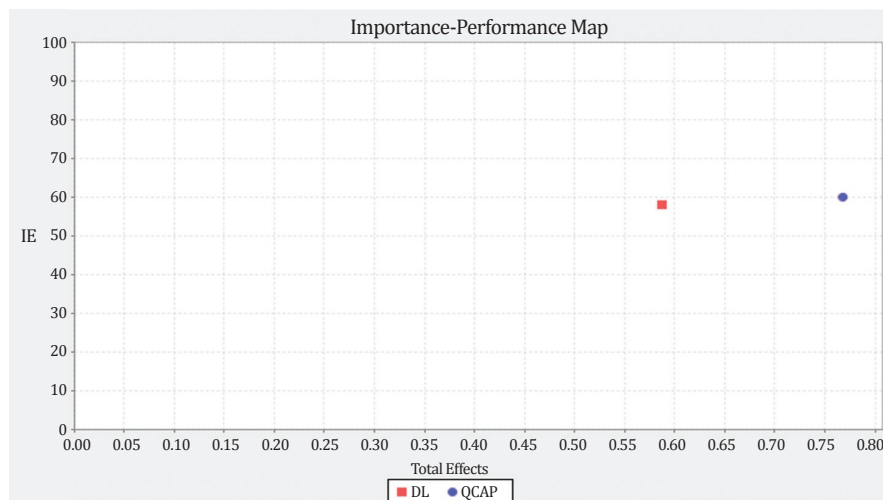


Figure 2 Importance-performance matrix analysis

The second alternative hypothesis which stated that there is a positive and significant relationship between distributed leadership and the quality academic process was also supported. The findings showed that an improvement in distributed leadership will bring about a 59.1 percent increment in the effectiveness of the school. The findings of this study are consistent with the study by OECD (2011). The third alternate hypothesis which stated that a quality academic process has a positive and significant relationship on the effectiveness of public universities in Nigeria was supported. The findings of this study support Rahman et al. (2013) who reported that a quality academic process is a good determinant of university effectiveness. According to Arjomandi et al. (2009), the curriculum, student assessment, service learning, and professional training are core activities that could enhance the output of the university system.

Furthermore, the fourth research hypothesis that was formulated in response to the second research question was supported, namely that quality academic processes play a mediating role on the relationship between distributed leadership and institutional effectiveness. This study justified the quest of Bruggencate, Luyten, Scheerens, and Slegers (2012) that suggested further study be carried out to examine the mediators between distributed leadership and institutional effectiveness. The result supports Southworth (2013) who concluded that effective leaders exercise their work directly by means of their indirect impact which is achieved via a series of processes and strategies and the current study identified a quality academic process as one of those processes and strategies. This indicates that for leaders to enhance the effectiveness of their university, the quality academic processes identified in this study need to be properly handled.

Implications

The findings from this study contribute to the empirical research on the relationship between distributed leadership and institutional effectiveness of university education in

Nigeria. The study supports that distributed leadership is positively associated with institutional effectiveness. However, for distributed leadership to have impact on the effectiveness of public universities, a quality academic process must be effectively implemented. Therefore, this research work has attempted to enrich the reviewed literature as well as contribute to school improvement studies globally and especially in developing nations like Nigeria.

This current study has also substantially enriched the understanding of the role of distributed leadership in enhancing institutional effectiveness. In addition, this study combining various measures that capture the multi-dimensionality of all the three main constructs of this study (distributed leadership, quality academic process, and institutional effectiveness) will serve as a substantial contribution to the literature on educational leadership and performance management. To the researcher's knowledge, this study is the first of its kind as an empirical study to explore the mediating role of a quality academic process on the relationship between distributed leadership and institutional effectiveness in a university context.

This study also builds on previous study in terms of the measurement of the mediating variable in this study. Calvo-Mora, Leal, and Roldan (2006) examined process management using three dimensions (the administrative process, educational process, and research process). However, the research process was not significant. Therefore, this study went further to combine the educational process and research process as the quality academic process and it contributed to knowledge by examining the quality academic process as a second order variable. Therefore, the university leaders should be proactive toward university process management by undertaking measures to improve the quality academic process in terms of good curriculum implementation, student-centered instruction, effective assessment, and productive service learning as well as encouraging quality research and development among academic staff.

Conclusion

There is no doubt that distributed leadership has a positive influence on the effectiveness of the university system. However, the process through which the academic process is carried out has a significant effect on a university's effectiveness. Therefore, the government agencies in charge of university education in Nigeria, especially the National University Commission, should place more emphasis on the identified components of the quality academic process in this study. It is also evident that the quality academic process mediates the relationship between distributed leadership and institutional effectiveness. However, further study should be conducted to identify the non-academic process that can also serve as a mediator between distributed leadership and institutional effectiveness. Furthermore, studies that examine the perception of other stakeholders on the relationship between distributed leadership and institutional effectiveness will be a welcome development.

Conflict of Interest

There is no conflict of interest.

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