

# **Influence of the Consultants Related Factors on the Performance of Selected Tertiary Educational Building (TEB) Projects in Nigeria**

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## **Abstract**

Among the various factors that predispose TEB projects to cost and time overruns, consultant related factors have been fingered as one to be recognized. Others include contractor related, owner related and external factors. In order to achieve the aim of this study, which is to determine the order of influence of the consultants related factors on the performance of selected TEB projects, mean item score and student T-test were used for the analysis. The perceptions of key construction stakeholders from 4 selected tertiary institutions, chosen consequent upon the record indicating a huge allocation received by these institutions from the federal government for capital projects, in the Southwestern part of Nigeria were sought. The reliability analysis carried out on the constructs show values of 0.862 and 0.946. It was found that delayed supervision & slowness in making decisions coupled with the absence of consultant's site staff are the top two consultants related factors that predisposed TEB projects to cost and time overruns. The factors cut across the TEB projects procured under both open and selective competitive tendering methods. Timely supervision with quick and prompt decision making therefore enhances building projects performance.

## **Keywords**

Competitive tendering, consultant's related factors, cost overrun, tertiary educational building projects, time overrun.

## **INTRODUCTION**

In terms of age, the construction industry is as old as nature itself and it is mostly concerned with one-off project unlike manufacturing sector (Oyewobi and Ogunsemi, 2010). The construction industry, where tertiary educational building projects are domiciled, is very important in the economic development of any nation especially with recourse to an expanding economy like Nigeria (Ibironke, 2003). Niazi and Painting (2017) noted that the backbone of the social and economic development of developing countries is the construction industry with 10% contribution to GDP in Afghanistan. The lingering problem being faced during the execution of any tertiary educational building (TEB) projects like other building projects in the Nigerian construction industry today can be broadly categorized as time overrun and cost overrun (Aibinu and Jagboro, 2002; Garry, 2005; Niazi and Painting, 2017; Ogunsemi, 2002) as well as lack of good quality of its end product that hardly stand the test of time in meeting client's requirements (Niazi and Painting, 2017; Oyewobi and Ogunsemi, 2010; Oyegoke, 2006). The production of the Nigerian procurement assessment report in the year 2000 by the World Bank was necessitated by lack of genuine competition and transparency (Olaniyan, 2010). Olaniyan (2010) observed that there were gaps between budget and actual releases, which usually resulted in underfunding, price escalating and abandonment of construction projects. Efforts

of some private sector professionals coupled with the World Bank report led to the recommendation of the competitive procurement system in Nigeria via due process. Literature reveals that non performance of tertiary educational building projects is consequent upon factors that are traceable to consultants that were involved on the projects among others (Niazi and Painting, 2017). Therefore, this study aims to assess the influence of the consultants' related factors on the performance of TEB projects in Nigeria via open and selective competitive tendering methods of procurement.

## **LITERATURE REVIEW**

### **Cost and Time Overruns (CTO)**

The problem of cost overrun especially in the construction industry is a worldwide phenomenon (Garry, 2005) and its ripples are normally a source of friction between clients (especially government clients), project managers and contractors on the issue of project cost variation. Many efforts have been channeled towards the studies on performance of construction projects in Nigeria and each attributed the causes of poor project performance, cost and time overruns, quality failures to various factors (Okpala & Aniekwu, 1988; Elinwa & Buba, 1993; Baloi and Price, 2003; Ogunsemi and Aje, 2005). Skitmore and Ng (2003) attributed it to client, project and contractual characteristics, Ogunsemi and Jagboro (2006) attributed the overrun to wrong cost estimation method adopted at the early stage of the building projects while Koushki, Al-Rashid & Kartam (2004) traced occurrence of cost and time overruns towards three main parts; contractor related problems, material related problems and owners' financial constraints. In essence, all stakeholders have responsibility and roles to play towards improving cost performance of the industry (Mbachu and Nkado, 2004).

### **Consultants Related Factors**

Among the various factors that predispose TEB projects to cost and time overruns, consultant related factors have been fingered as one to be recognized. Others include contractor related, owner related and external factors (Babalola, Oluwatuyi, Akinloye, and Aiyewalehinmi, 2015). Asides the interview that was conducted for the experts in the construction industry in order to unravel the factors giving rise to overruns in terms of cost and schedule, consultation was also made to published academic journals and conference papers. From the review of these studies, evidences abound that consultants related factors caused schedule delays (Muhwezi, Acai, & Otim, 2014). Aibinu and Odeyinka (2006) identified incomplete drawings, late issuance of instructions and inadequate supervision as being the consultant related group of delays impacting construction projects. Inadequate site supervision by the consultant topped the list of major cause of delay Al-Khalil and Al-Ghafly (1999). Others highlighted delays in approving major changes in the scope of works, inadequate experience of the consultant and late in reviewing design documents, delays in design work and inadequate site inspection (Al-Kharashi & Skitmore, 2009; Muhwezi, Acai, & Otim, 2014).

## **RESEARCH METHODOLOGY**

Survey method was adopted in this study with primary data collected through structured questionnaires that were administered on the key professionals of completed TEB projects. The methods of procurement for the TEB projects were open and selective competitive in nature. While tables were employed for data presentations, the analysis of the collected data was carried out using both the descriptive and inferential statistical tools. Percentiles was used in analyzing the general characteristics of the respondents such as years of working experience, academic and professional qualifications while mean was not only used in determining the average years of working experience acquired by the respondents but also in ranking of items rated on a 5-point likert scale. Student T-test was employed in this research work to determine and examine the significance difference for the hypotheses stated.

### **Research Rigour**

Researches can be classified into positivist or the interpretative paradigm or philosophy and if a research reflects the principles of positivism, then it has taken the stance that there is a reality out there waiting to be discovered and this reality could be measured and assessed objectively (Wong et al, 2012). This study has adopted the positivism paradigm by assessing the influence of the consultants' related factors on the performance of selected TEB projects in Nigeria. According to McGregor and Murnane (2010), rigour ensures that scientific results stems from standard and accurate means in research and such needs to be established. Adedokun, Ibironke and Olanipekun (2013) relate rigour to legitimizing research process; where validity and reliability are the tests of rigour in positivist (quantitative) research. Wong et al. (2012) added a third criterion (sensitivity) to validity and reliability as means of ensuring good measuring instrument. Sensitivity is the ability of research instrument to capture the variability in responses and 5-point likert scale was advocated because it allows for optimum choice of response (Adedokun et al., 2013); and thus was adopted in this study. The reliability analysis of the constructs used in this study was carried out using Cronbach's alpha test. The alpha values of 0.862 and 0.946 (Table 1) for TEB projects procured under open and selective competitive tendering methods respectively. The implication of the alpha values is that the research instrument adopted for the study is reliable being greater than 0.70 and tends towards 1.0 (Kothari, 2009; Sushil and Verma, 2010). Having gone through myriad of authors' previous works with proper scrutiny, 6 major factors were profiled as consultants' related factors, with peculiarity to the study area. The factors were subsequently incorporated into the survey instrument adopted in this study.

**Table 1: Reliability Analysis of the Constructs**

Scale of measures	Competitive Tendering Methods	
	Open	Selective
Consultants Related factors	0.862	0.946

### **Background information of the respondents to the survey**

Out of the 120 questionnaires administered on the respondents, 78 were filled, returned and found fit for the analysis. The analyzed questionnaire represented 65% of the total questionnaire sent out which is considered sufficient for the study (Adedokun, Ibironke and Babatunde, 2013).

From Table 2, majority of the respondents are Engineers having 46.15% comprising 23.08%, 8.97% and 14.10% of Structural Engineers, Mechanical Engineers and Electrical Engineers respectively. 23.08% of the respondents are Quantity Surveyors while the Architects represented 19.23%.

Analysis of the Table 2 reveals that majority of the respondents are B.Sc./ B.Tech/B.Eng holder with 35.90% and closely followed by respondents with additional higher qualification of Postgraduate Diploma (PGD) representing 29.49%, while the third category has M.Sc. certificates as their highest qualification obtained with 25.64% and 8.97% having HND as highest qualification.

**Table 2: Demographics of the respondents**

<b>Category</b>	<b>Classification</b>	<b>Frequency</b>	<b>Percent</b>
<b>Profession</b>	Quantity Surveying	18	23.08
<b>Of</b>	Architecture	15	19.23
<b>Respondents</b>	Building	9	11.54
	Engineering	36	46.15
	<b>Total</b>	<b>78</b>	<b>100.00</b>
<b>Year</b>	1 – 5	5	6.41
<b>Of</b>	6 – 10	33	42.31
<b>Working</b>	11 – 15	20	25.64
<b>Experience</b>	16 – 20	8	10.26
	21 – 25	6	7.69
	26 – 30	6	7.69
<b>Mean</b>	<b>12.68</b>	<b>Total</b>	<b>78</b>
			<b>100.00</b>
<b>Professional</b>			
<b>Membership</b>	Probationer	18	23.08
<b>Type</b>	Corporate	60	76.92
	Fellow	0	0.00
	<b>Total</b>	<b>78</b>	<b>100.00</b>
<b>Highest</b>	HND	7	8.97
<b>Academic</b>	B.Sc/B.Tech/B.Eng	28	35.90
<b>Qualification</b>	Pgd	23	29.49
<b>Obtained</b>	M.Sc/ M.Tech	20	25.64
	PhD	0	0.00
	<b>Total</b>	<b>78</b>	<b>100.00</b>

Regarding the years of working experience possessed by the respondents, it can be seen that most of the respondents are within 6 – 10 years of experience being 42.31% of the total respondents. On the average, the respondents had an average of 13years working experience. Based on aforementioned, information supplied by this category of professionals is considered adequate and reliable for this analysis.

**Table 3: Consultants related Factors that trigger CTO**

Factors	Competitive Tendering Methods			
	Open		Selective	
	Mean	Rank	Mean	Rank
Delayed supervision and slowness in making decisions	3.92	1	3.08	1
Absence of consultant's site staff	3.84	2	3.04	2
Slowness in giving instruction	3.80	3	2.72	5
Lack of experience on the part of the consultant	3.64	4	2.80	3
Incomplete documents	3.56	5	2.68	6
Lack of experience on the part of consultant's site staff (managerial and supervisory personnel)	3.48	6	2.76	4

**Table 4: T-test on Consultants related Factors that trigger CTO**

	<i>Open Tendering</i>	<i>Selective Tendering</i>
Mean	3.7067	2.8467
Variance	0.0290	0.0290
Observations	6	6
Pooled variance	0.0295	
Hypothesized Mean Difference	0	
Df	10	
t Stat	8.6775	
P(T<=t) one-tail	0.0000	
t Critical one-tail	1.8125	
P(T<=t) two-tail	0.0000	
t Critical two-tail	2.2281	

Table 3 depicts that under both open and selective tendering methods of contract execution, delayed supervision & slowness in making decisions and the absence of consultant's site staff ranked 1<sup>st</sup> and 2<sup>nd</sup> under the two occasions but with different Mean Score (M.S) values of 3.92 & 3.84 and 3.08 & 3.04 respectively. Lack of experience on the part of consultant's site staff (managerial and supervisory personnel) ranked least (6<sup>th</sup>) (M.S. = 3.48) in open tendering methods while in selective tendering method, least (6<sup>th</sup>) ranked is incomplete documents are the consultant's responsibility in impairing the cost and time performance of construction projects.

At the instance of consultants' related factors that trigger cost and time overruns for TEB projects, the following hypothesis was tested:

**Null Hypothesis ( $H_0$ ):** there is no significant difference in the consultant's related factors predisposing TEB projects, between open and selective tendering methods of procurement, to cost and time overruns.

**Alternative Hypothesis ( $H_1$ ):** there is significant difference in the consultant's related factors predisposing TEB projects, between open and selective tendering methods of procurement, to cost and time overruns.

**Decision:** Based on the analysis carried out in table 4,  $T\text{-critical} < t\text{-cal}$  ( $P\text{-value} < 0.05$ ), hence, the null hypothesis is rejected and the alternative hypothesis which states that there is a significant difference in the consultant's related factors predisposing TEB projects, between open and selective tendering methods of procurement, to cost and time overruns is accepted.

### **Evaluation of findings**

The Nigerian construction industry has been characterized by cost and time overruns as opined by Garry (2005), Okpala and Aniekwu (1988), Elinwa and Buba (1993), Baloi and Price (2003), Ogunsemi and Aje (2005), Ogunsemi (2002), Aibinu and Jagboro (2002). From table 2, it can be inferred that the main issue making consultants responsible for non-performance of TEB projects are delayed supervision and slowness in making decisions coupled with the absence of consultant's site staff. These findings are in consonance and agreement with Al-Khalil and Al-Ghafly (1999) and Aibinu and Odeyinka (2006) that inadequate site supervision and late issuance of instructions & inadequate supervision are critical consultant related factors respectively. The present study also corroborates Iyer and Jher (2005) that identified reluctance of the consultants in timely decision making. The top two factors in this study tied under both open and selective tendering methods thereby making it a germane issue that beckons for quick and timely redress regardless of the statistical significant difference recorded.

## **CONCLUSIONS**

Following the results of data analysis carried out that the consultant's related factors predisposed TEB projects to cost and time overruns. It was noted that the consultant's culpability stemmed out of delayed supervision and slowness in making decisions coupled with the absence of consultant's site staff culminated with slowness in giving instructions.

## **RECOMMENDATIONS**

In order to enhance the speedy, smooth and efficient execution of construction projects devoid of cost and time overruns, the following recommendations are hereby suggested that adequate and timely supervision of TEB

projects should be accorded high importance by the consultants while ensuring quick and prompt decision making. Lastly, the client should demand for performance bond from his consultants in order to curb these excesses while ensuring commitment.

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