CLIENT-ARCHITECT BEHAVIOURS TOWARDS COST ADVICE IN NIGERIA: QUANTITY SURVEYORS' PERSPECTIVE

Baba Adama Kolo[1], Badiru Y. Yunusa[2] and Anita A. Dzikwi[3]
[1,3]*Department of Quantity Surveying, Ahmadu Bello University, Zaria, Nigeria*
[2]*Department of Architecture, Ahmadu Bello University, Zaria, Nigeria*

Cost advice (CA) during early stage of building projects is an imperative to achieving value for money, but receives little consideration in the Nigerian Construction Industry (NCI). Construction clients and architects are foremost beneficiaries of this function and contributor majorly to its success or failure. Problems related to the *'cost advice'* function significantly contribute to some of the inefficiencies and non-performances crippling NCI. This paper investigates *'behaviours'* of clients and architects as they relate to the *'cost advice'* function of quantity surveying (QS) practice. Data were gathered from 248 projects sought from quantity surveying firms. Descriptive statistics, correlation analysis and test of significance were carried out. Based on these outcomes regression analysis was employed to establish the impact of the behaviours to the outcome of *'cost advice'* function. Behaviours relative to engaging QS and provision of design information were found to be *'slightly less than normal'* while services required from the QS comes with some challenges. Based on the strength of the impact of these behaviours on CA outcomes, it is suggested that certain behaviours must be tightly monitored and improved upon to ensure success of the CA services offered by the QS during early stage of building projects.

Keywords: client-architect behaviour, cost advice, quantity surveyor.

INTRODUCTION

Boundaries of cost advice function within the construction industry globally is assuming unprecedented highs owing to what Cartlidge (2006) referred to as the 'catalyst for change'. This is towards achieving and improving value for money for public sector procurement in particular (Kelly, Morledge & Wilkinson, 2002).This catalyst influences procurement culture worldwide bringing with it adaptive measures for the evolving nature of the traditional cost advice function of quantity surveyors (Ashworth and Hogg, 2007). Liu and Fellows (2008) reviewed several culture-based literature and assert that' behaviour is an important manifestation of culture'.

In line with global trends, the Federal Government of Nigeria (FGN) stipulate that all public procurement must follow the path of value for money in its procedures and practices as contained in the Public Procurement Act (PPA) 2007 (FRN, 2007; ICRC, 2009). And as such, evidence exists of calls for the NCI to adopt Value Management (VM) (Omole, 2000; Ajator, 2004; Oke & Ogunsemi, 2009; APDC, 2010) which is a

[1] babaadamakolo@yahoo.com; bakolo@abu.edu.ng
[2] badirudeenyunusa@yahoo.com
[3] ninadzi@yahoo.com

Kolo, B.A., Yunusa, B.Y. and Dzikwi, A.A. (2011) Client-architect behaviours towards cost advice in Nigeria: Quantity Surveyors' perspective *In:* Laryea, S., Leiringer, R. and Hughes, W. (Eds) *Procs West Africa Built Environment Research (WABER) Conference,* 19-21 July 2011, Accra, Ghana, 251-260.

widely accepted methodology for achieving value for money (Kelly, Male, & Graham, 2004). This call for an integrative approach by the FGN will have significant implications for the CA services required by the NCI. For example VM methodology requires excellent working relationships that promote integrated team work. However, this is at dissonance with inherent practice in NCI (Kolo and Ibrahim, 2010). Again, for an integrative approach, Ashworth (2004) demonstrate that the eventual outcome of the CA function is a reflection of individual circumstance, nature of design and information available etc, which are termed as behavioural variables (BVs) within the context of this study and discussed in the next section.

The challenge posits by these inherencies of the NCI will impact on the theoretical and methodological considerations (e.g. purpose, applications, reactions etc) of the cost advice function which the QS offers in the NCI. Despite this, researches on CA in NCI have exclusively focused on factors affecting accuracy (see for example Odusami and Onukwube, 2008) and accuracy level (e.g. Oladokum et al., 2009). Therefore gaps exist in literature on behaviours and the CA function of the QS in NCI. A study of human behaviour is a domain of sociology, dealing specifically about social nature of the problems within a system. This study situates itself within this context. In construction, problems of social nature in recent times have been the focus of researches (Hughes, 2009, 2010; Leiringer, 2010). And the solutions to these social problems will bring about the needed change in service delivery of the industry (Hughes, 2010). Hence this paper contributes to this field of study. To do that, it investigates client-architect behaviours towards cost advice function of QS in the NCI by first discussing cost advice in Nigeria, bringing out 'expected behaviours' of both the clients and architects for successful CA services from the QS. Thereafter, the way the research was conducted is described in detail followed by the results of the investigations. Lastly, ways aimed at addressing the implications of the findings are suggested to establish a base for advancing researches in this aspect in the NCI.

COST ADVICE AND THE NIGERIAN CONSTRUCTION INDUSTRY

The Construction Industry is made up of complex nexuses of relationships and interactions in order to meet up the requirement of its clients, thus requiring highly specialised services. Therefore, it is necessary for clients to employ a range of different professional advisers to advice on funding, design, cost, construction, letting etc (Ashworth, 2008). In Nigeria, QSs are the professionals recognised by law to provide CA during the life cycle of construction projects (Adetola, 2001). And over the years the QS profession has been experiencing phenomena changes in her approach to providing CA. Akintoye (2001) highlights these changing pattern from a global perspective and characterised the challenges posed by these changes within the NCI as focusing more on client's satisfaction. Adetola (2001) further stated that the re-directioning of the QS practise in Nigeria is more of 'value and wealth generation through cost and financial engineering' rather than preparation of bills of quantities and financial statements.

Adetola's assertions tends to locate the significance of the QS within the early parts of construction projects which essencially is the strategic stage (Cartlidge, 2006). This is in line with global practice, thus: 'the (cost) advice is particularly crucial at the early stages of project inception. It is at this time major decisions, often affecting the size and quality of the works are determined' (Ashworth, 2004). However, in spite of the changing nature of the QS profession within the NCI, certain challenges do exist.

Adebola (2001) informed that though QSs were duly recognised by law in 1990 it has largely been excluded from projects in the engineering subsector of the NCI . For instance heavy engineering, civil engineering, petroleum, oil and gas installations, and power installations. Adetola (2001) also noted that government, which is the major client of the NCI have been quite unfair to the QS in that services rendered are either partially reimbursed or totally not reimbursed. Some of the reasons advanced for the non involvement of the QS in these areas include ignorance by the public sector of benefits derivable from the services of the QS and corruptive tendencies (Adebola, 2001; Aje & Awodele, 2006).

CLIENT – ARCHITECT BEHAVIOURAL ISSUES

Behaviour is defined as 'the way in which somebody behave' and behave is 'to act in a particular way that expresses general character, state of mind, or response to a situation or other people' or 'to perform in or react to particular conditions or circumstances' (Encarta, 2010). This section contextualises the particular ways clients and architects act and characterise their response towards the CA function of the QS. The objective of the design process is the satisfaction of client's requirement, which is obtained when the 'best' design solution has been discovered within the constraints imposed by or on the project (Ferry, Brandon, & Ferry, 1999). In order to keep within these constraints, some compromises are necessary and it is the duty of the QS to provide information of the implications of these compromises to aid design decisions. This point to the aspect of how clients act in engaging QS on projects. Late engagements of QS have been reported in Nigeria (Anago, 2001; Oladapo, 2006).

To achieve value for money at the design stage, Ferry, Brandon, & Ferry (1999) advice that such responsibility particularly cost planning - a process of CA, should not be solely placed on the shoulders of the QS. But that the architect must cooperate and contribute to the process. This gives an instance of behaviour of the architect in terms of collaborating with the QS towards the success of the CA function. Ashworth (2004) brings out the behavoural repercussion of this instance thus: 'a designer who is either unable to or unwilling to provide quantitatlve and qualitative information must therefore expect that the cost advice will, by necessity, be vague'. Within the NCI, there are calls to improve upon the relationships that exist between members of the design and construction teams for the purpose of achiecing project success (Adetola, 2001; Akingbohungbe, 2006; Kolo & Ibrahim, 2010).

From the aforementioned, a study of behaviours of client-designer towards cost advice at early stages of projects can be viewed from three aspects: engagement of firms, design information and client-designer responsiveness in terms of provision of requisite information and reaction to the advice. The concept of behaviour within literature is inferred from the established practices i.e. 'the way client – architect are 'expected to act' in terms of engagement of QS and their subsequent reaction to the CA provided. The theories of these practices have been exhaustively explained and conceptualised (see Ferry, Brandon & Ferry, 1999; Ashworth, 2004; Cartilidge, 2006). For lack of space and need for brevity, we have merely outline the behaviours and their attributes. For the purpose of this study three aspects relative to CA are evident – engagement, design information and response. Engagement involves the stages at which QS are brought into the project e.g. at inception, design, information production etc; and form, which relates to who brings the QS in, for instance the client or architect. Design information focuses on establishing the following behaviours, the sufficiency of information contained in the brief, frequency and sufficiency of design

information given by the architect. Finally, the third aspect, response measures behaviours in terms of the type of cost advice requires e.g. cost limit, cost plan, BOQ; time allowed for the CA function; and both the client and architect response to the CA e.g. accepting or rejecting the CA. The paper further assumes that where behaviours are consistent with practice as established in literature, they are termed as 'normal' and as 'abnormal' otherwise. This is clearly in line with Graham's (1995) assertion cited in Liu and Fellows (2008) that 'moral reasoning is one of the possible explanations in determining what constitutes good behaviour'.

RESEARCH METHOD

Research Approach

There however can be two aspects to the study of behaviours – *identifying and/or establishing behaviours* and *explaining the behaviour*. This study focuses on identifying behaviours of clients and designers towards cost advice function of the QS. A number of methods seem adequate for studies of this nature namely: survey research, observation research and the case study method (Moser and Kalton, 2001). The type of data required for a study, which entails the investigation of QS practice to establish behaviours necessitates the adoption of methods that would produce a wide coverage of data collected on a variable-by-case-data basis (DeVaus, 1991). This involved gathering responses based on the same data structure set from as many cases as possible. The survey research method was chosen for this study, been a much appropriate method for studies of this nature as suggested by DeVaus (1991). This was also used by Liu and Fellows (2008) in a related study on behaviours of QS in Hong Kong.

Survey Sample

The target population for the survey research are QS in the NCI. In establishing the sample from the identified population of a survey research, De Vaus (1991) identified two types of samples: probability and non-probability samples He advised that the probability samples are preferred *"because they are more likely to produce representative samples and enable estimates of the sample's accuracy"*. Hence, the choice of the probability sample type for the purpose of this study. In deciding on the sample size that would be representative of the population De Vaus' advised that *".... the size of the population from which we draw the sample is largely irrelevant for the accuracy of the sample. It is the absolute size of the sample that is important."* This was adhered to for the purpose of this work and the parameters in De Vaus's sample size model provided further guide in deciding on the sample size. Based on the model, an initial sample size of 150 was drawn.

Survey techniques/Methods

Basically, data can be collected by observation, in-depth interview, document analysis, questionnaire amongst other known survey methods. The questionnaire technique has been found to be apt descriptive researches and was adopted for this study. Of the three methods of administration identified by De Vaus viz: face-to-face, telephone and mail, the mail was adopted. This is due to the unsurpassed 'plus' inherent in and enjoyed by this method - ability of handling long questionnaire and complex questions, identification of non-response items, efficient response rate in terms of general and specialized samples amongst others (Frankfort-Nachmias and Nachmias 2009).

The questionnaire 'set' consists of close ended question types divided into two main sections - *General Information* about Respondent/Firm and basic description of projects for which information were provided; and *Client/Architect Based Information*. The questionnaire was designed to elicit factual information from the respondents which were easily gleaned from project files. On completion of a pilot, a total of 150 sets of questionnaires were distributed to selected QS firm in Nigeria. A return rate of 65.3% was considered high for a research of this nature as researches in similar areas with lower response rates have been reported. Of the returned questionnaire, 41.32% of them i.e. 62 were usable for the purpose of achieving the goals of the study. However, since respondents were requested to provide project specific information for up to nine (9) current projects, information for at least four (4) projects were given in each of the usable questionnaires. Hence, project-based data were provided for 248 projects which formed the basis for analysis in this study. The units of measurement for each of the behaviours identified in the previous section are shown in Table 1.

RESULTS

Cost-related Behaviours of Clients and Architects

The success of any cost advice depends on the inputs and reactions of both clients and members of the design team – in this case, architects (Ashworth, 2004). Table 1 shows the general characteristics of project surveyed in this study in terms of building types, client types and project status. It further shows the BV investigate for which the most common occurrence statistics i.e. mode (Frankfort-Nachmias and Nachmias 2009) has been adopted in this study as an indication of the existence of a behaviour.

Table 1 – Frequency Distribution of Client/Architect Cost-related Behaviour Variables (*n = 248*)

Variables	%	Variables	%	Variables	%	Variables	%
Building type		**Client type**		**Project status**		**Clients brief**	
1 - Commercial	*27.4*	1 – Public	*54.8*	0 - Didn't Say	*0.4*	1 - Not sufficient	*21.0*
2 - Educational	*10.9*	2 – Private	*25.4*	1 – Abandon	*12.9*	2 – Sufficient	*62.5*
3 - Industrial	*13.7*	3 - Institutional	*19.4*	2 – Completed	*58.5*	3 - Very sufficient	*16.5*
4 - Residential	*47.6*	4 – Others	*0.4*	3 – Others	*28.2*		
5 – Others	*0.4*						
Engage Stage		**Engage Form**		**Cost Advice**		**Time Allowed**	
0 - Didn't Say	*4.8*	1 - Client	*59.7*	1 - Cost limit	*12.9*	0 - Didn't Say	*49.2*
1 - Inception	*49.2*	2 – Architect	*32.7*	2 – Prel cost plan	*11.3*	1 - Not sufficient	*25.8*
2 - Outline proposal	*25.8*	3 – Others	*7.7*	3 - Final cost plan	*0.4*	2 – Sufficient	*16.1*
3 - Design stage	*2.0*			4 – BOQ	*23.4*	3 - Very sufficient	*8.9*
4 - Productn inform	*18.1*			5 – None	*4.8*		
				6 - All of the above	*47.2*		
Freq of Des Info		**Arc Design info**		**Arc Response**		**Client Response**	
1 - Less frequent	*14.5*	1 - Not sufficient	*17.7*	0 - Didn't Say	*6.9*	0 - Didn't Say	*10.9*
2 - Frequent	*37.9*	2 – Sufficient	*48*	1 - Design to CA	*70.2*	1 - Design to CA	*66.1*
3 - Very frequent	*47.6*	3 - Very sufficient	*34.3*	2 - Unwillingly	*10.9*	2 - CA as academic	*8.9*
				3 - Design not to	*12.1*	3 - Indifferent to CA	*14.1*

The data set best describes public residential buildings which were completed at the time of collecting the data. From a general viewpoint, the client brief provided at the start of construction project is 'sufficient' for the purpose of cost advice during design stages. Though a fair number of QS are engaged at the 'inception stage' of projects, some of them are 'not engaged by the client' with more than half of them 'not providing all the services required' at the pre-tender stage. This goes against the principle of continuity wherein lies the gains of cost control (Seeley, 1996). A major mismatch however exist between the stage of engagement and cost advice produces where in more than 80% of QS are 'engaged before production information stage' and up to a quarter of them 'were asked to prepare BOQs'. This will definitely affect the

accuracy of the BOQ since at this stage design information will not be sufficient for the purpose of BOQ (Ashworth, 1999; Ferry et al., 1999).

In terms of the time given for the purpose of CA function, Clients still 'do not give sufficient time' for the cost advice function of the QS as only 25% of the respondents believe that the time allowed is either sufficient or very sufficient. However this particular variable had a relatively high response of 'didn't say' (46%) and hence will distort the patterning of the client's behaviour in terms of time allocation to the QS in Nigeria. But this notwithstanding, the finding further supports the rush-style behaviour of project implementation in Nigeria. Though design information given by architects are believed to be 'sufficient' and are 'provided very frequently', efforts should however be upped by architects to improve upon the sufficiency of design information they provide. In spite of the lack of a coordinated cost control mechanism exhibited by clients, they do 'ensure that designs are kept within the limits of the cost advice' provide by the QS while architects also endeavour to 'design within the cost advice'.

Modelling Client/Architect Behaviour and Outcome of the CA Function

1. Behaviour – Outcome Relationships

Behaviour and character, aside individualising an entity, further dictates to a very large extent its responses to external stimuli i.e. the resultant outcome of the interaction. As identified earlier the client-architect behaviour will determine cost advice function in terms of project status, the cost advice eventually provided, and both the client and architect reactions to it. Table 2 below shows the existence of significant relationships between behaviours and the aforementioned outcomes based on correlation analysis tested at 99% confidence level.

Table 2 - Correlation between Behaviour/character and CA Outcomes (Showing only those which are significant at 99%)

Character/Behaviour	Project status	Cost advice provided	Clients Response	Architect response
Building type	-	-	0.267	-0.469
Client type	0.326	0.170	-0.391	-
Stage of Engagement	0.485	-	0.162	0.187
Form of Engagement	-	0.198	-0.240	-0.150
clients brief	0.214	-	-	0.609
Time allowed	-	-0.531	-	0.303
Architect's design info	0.186	0.199	0.182	-
Frequency of Design Info	0.609	0.363	-	-

Table 2 reveal that project status do have positive relationships with client type, stage of engagement, client brief, sufficiency of design information, and frequency of the design information. Frequency of design information has the greatest degree of relationship with project status having a correlation coefficient of 0.609 while sufficiency of design information has the lowest at 0.186. Cost advice provided is positively related with client type, form of engagement, architect design information and frequency of design information but negatively related to time allowed for CA function. The reverse relationship suggest that more time is given for simpler CA functions like establishing cost limit and preparing cost plans than that given when preparing BOQ and where all CA services are required. Client response positively correlates with building type, stage of engagement and architect design information while it negatively related to client type and form of engagement. The strengths of the relationships in this outcome variable are weak ranging from 0.162 to 0.391.

This finding is not surprising, it is expected that client response to the CA should not be dependent on project particulars and behaviours. But the existence of significant relationships is indicative of an unhealthy trend in the NCI especially for public projects given the requirements of the PPA currently in use. The PPA 2007 requires that projects must strictly comply with budget provision. Architect's response is negatively related to building type and form of engagement while it is positively related to stage of engagement, client brief and time allowed. Its highest degree of relationship is with client brief having a correlation coefficient of 0.609 and building type -0.469. Expectedly, this should be the case particularly with that of client's brief because as the brief becomes less sufficient on cost-related information, such deficiencies will lead to the architect disregarding the essence of CA provided there from.

2. Impact of Client-Architect Behaviour

The coefficient of correlation established in the previous section identified those BVs that significantly correlate with the various CA outcomes i.e. project status, cost advice provided, client's and architect's responses. This section establishes the impact of the associative BVs with each of these CA outcomes. Regression analysis is employed in establishing these impacts, which is a robust technique for establishing influences and impact but poor at determining causality (Mohammed, 2007).

The outcome of the analysis performed is shown on Table 3, displaying the standardised coefficients of β values for each of the BVs and their respective p-values. The p-value of the ANOVA statistic i.e. 0.000 indicates that the established impacts of the BVs are statistically significant to the various responses variables i.e. the CA outcomes. The r2 is indicative of the extent to which the BVs explained the variations of impact in the responses variables (RVs). The statistics as shown in Table 3 reveals that the BVs explained 82 – 96% of the impact variations in the RVs.

Table 3 – Impact of Client-Architect Behaviour on CA Outcome

Variables	*β*	Sig.	Variables	*B*	Sig.
Project Status			***Cost Advice***		
Client type	0.162	0.000	Client type	0.497	0.000
Stage of Engagement	0.160	0.000	Form of Engagement	0.193	0.000
client's brief	0.196	0.000	Time allowed	-0.359	0.000
Architect's design info	0.001	0.990	Architect's design info	0.442	0.000
Freq of providing DI	0.508	0.000	Freq of providing DI	0.073	0.423
ANOVA	*0.000*		*ANOVA*	*0.000*	
r^2	*0.963*		r^2	*0.938*	
Client's Response			***Architect's Response***		
Building type	0.369	0.000	Building type	-0.384	0.000
Client type	-0.341	0.000	Stage of Engagement	0.423	0.000
Stage of Engagement	0.330	0.000	Form of Engagement	-0.016	0.715
Form of Engagement	-0.221	0.002	Clients brief	0.773	0.000
Architect's design info	0.771	0.000	Time allowed	0.180	0.000
ANOVA	*0.000*		*ANOVA*	*0.000*	
r^2	*0.820*		r^2	*0.899*	

A major influence on project status is the 'frequency with which the architect provides design information' to the QS by exacting a 0.508 positive change to the project status per unit change relative to the other four influences. In essence then, this is a variable whose behaviour amongst architects should be closely monitored for CA success at the very early stages of building project. Though the other project status related

variables do have minimal impact (their impact are statistically significant except for the sufficiency of the design information provided by the architect) on project status, they should also be closely monitored for effectiveness of CA function. The infinitesimal impact of 'sufficiency of design information' should not be surprising because at early stages of building projects the paucity of design information is widely recognised in the NCI.

Three BVs highly impacts on the cost advice provided by QS in the NCI, namely: client type (0.497), time allowed (-0.359) and sufficiency of design information provided by the architect (0.442). The inverse impact of time allowed implies that for a unit increase in the time allowed for instance say from 'not sufficient' to 'sufficient', the nature of the cost advice will tend to change from say 'BOQ production to final cost plan' or from 'final cost plan to the mere establishment of cost limit'. Two variables do not potentially impact on the cost advice provided namely form of engagement (0.193) and frequency with which design information are provided by the architect (0.073). Though the former does not exhibit any statistical significance in its impact but latter should nonetheless be closely considered during early stages of projects alongside the other three variables.

Clients have been known to either do nothing or ensure that designs are in consonance with the CA provided; sufficiency of architect's design information is found to have the greatest impact (0.771) on client's response compared to the others. The others fairly impact both negatively and positively. For instance, client type exacts a -0.341 impact which means that as client type changes from 'public' to 'private', client response is decreased by a value of 0.341. This may mean moving from say seeing the 'CA as an academic exercise' to 'ensuring that designs are within the CA'. In the case of architect's response to the CA, client's brief has the greatest impact (0.773) followed by stage of engagement of the QS. The negative impact of building type on architect's response implies that as building type change from commercial to education, architect's response is more likely to change from not designing to CA to unwillingly designing to CA.

CONCLUSIONS

Despite the urgency in call for researches on CA in the CI, brought about by the wake of the 'catalyst for change' in the construction industry and further worsen by the challenges facing QS in the NCI, attention has only been focused on issues that deal with accuracy. Evidences do exist in literature that the success of the quantity surveyor's CA function is largely dependent on the behaviours of clients and designers particularly during early stages of construction projects. This is against the popular thinking of considering the factors as oppose to the reasons for this factors which is the direction of this study. On a general level, client-architect behaviours towards CA in the NCI can be described as 'slightly less than normal' because in more cases the behaviour are less than that expected i.e. normal, compared to those in which they were exceptional i.e. above normal. In fact none of the behaviours attained this status. Instances in which behaviour can be described as 'normal' includes: client provides QS with briefs that are sufficient in information. Their behaviour towards engagement is that they engage QS early by that the engagement is done by clients themselves. However in some instances, abnormal behaviours were evident. For instance despite the fact that clients do engage QS early enough in projects, they required them to prepare BOQs. Some other abnormalities include insufficient time given for the purpose of CA and the near insufficiency of design information provided

by the architect. Hence, there is need for improvements in these behaviours by clients and architects for effectiveness in the CA function. The reason for this is further corroborated by the existence of significant relationships and the impact these behaviours do have on the CA related outcomes. Another way at leveraging the challenges pose by the existence and influences of these behaviours is the re-consideration of the CA tools and methods adopted during the design stage. This however calls for researches that will relate methodological issues to behavioural concepts by expanding Liu and Fellows' (2008) research to study clients and designer and localising their research instrument to fit the NCI.

REFERENCES

Adebola, O. (2001). Quantity Surveying and National Development: The Public Sector Perspective. In G. O. Moneke, *Quantity Surveying and Total Cost Management: Context, Issues, and National Development* (pp. 134 - 150). Abuja: Nigerian Institute of Quantity Surveyors.

Adetola, F. O. (2001). Quantity Surveying and National Development: The Private Sector Perspective. In G. O. Moneke, *Quantity Surveying and Total Cost Management: Context, Issues and National Development* (pp. 110 - 133). Nigerian Institute of Quantity Surveyors.

Aibinu, A. A., & Jagboro, G. O. (2002). The Effect of Construction Delays on Project Delivery in Nigerian Construction Industry. *International Journal of Project Management , 20*, 593-599.

Ajator, U. (2004). Value Management and Buildability Assessment as Indispensable Tool for Efficient, Cost-Effective Building Production. *The Quantity Surveyor , 48*, 2 - 9.

Aje, I. O., & Awodele, O. A. (2006). A Study of Ethical Values of Quantity Surveyors in Nigeria. In D. R. Ogunsemi (Ed.), *Ethical Issues and the Challenges in Construction Professionals' Service Delivery* (pp. 14 - 31). Akure: NIQS Ondo State Chapter.

Akingbohungbe, D. O. (2006). Development, Building Industry: The Context and Challenges for National. In D. R. Ogunsemi (Ed.), *Ethical Issues and the Challenges in Construction Professionals' Service Delivery* (pp. 32 - 42). Akure: NIQS Ondo State Chapter.

Akintoye, A. (2001). Quantity Surveying: An Art or Science? A Researcher's Perspective. In G. O. Moneke (Ed.), *Quantity Surveying and Total Cost Management: Context, issues and National Development.* Nigerin Institute of Quantity Surveyors.

Anago, I. T. (2001). The Role of the Quantity Surveyor in National Development. In G. Moneke (Ed.), *Quantity Surveying and Total Cost Management: Context, Issues and National Development* (pp. 1 - 18). Abuja: Nigerian Institute of Quantity Surveyors.

Ashworth, A. (2004). *Cost Studies of Buildings* (4th Edition ed.). Oxford: Pearson Prentice Hall.

Ashworth, A. (2008). *Pre-contract Studies: Development economics, tendering and estimating.* London: Blackwell Publishing.

Ashworth, A. and Hogg, K. (2007) Willis's Practice and Procedure for Quantity Surveyors, 12th Edition, Blackwell Publishing, UK.

Cartlidge, D. (2006) *New Aspects of Quantity Surveying Practice*, 2nd Edition. Butterworth-Heinemann, Oxford.

Federal Republic of Nigeria. (2007). The Due Process Handbook. *The Public Procurement Act* . Nigeria.