Responsiveness of Quantity Surveying Research to the Construction Industry Related Problems in Nigeria

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Abstract

Numerous challenges facing the construction industry require investigations through academic research to proffer urgent solutions. Academics endeavour to produce research outputs to combat these challenges yet practitioners disagree on the practicality of academic research. Therefore, this paper presents a report that explores the responsiveness of academic research produced by quantity surveyors – a construction professional, to solving severe challenges in the construction industry in Nigeria. Primary data were obtained through questionnaire survey from purposively selected 15 academics and 44 practicing quantity surveyors in South-western Nigeria. The data collected were analyzed using the severity index, mean score, relative importance index and Mann-Whitney U test. The study revealed that quantity surveying academic research (QSAR) is sufficient to solve the most severe challenges in the construction industry which include porosity of tendering procedures, cost and time overrun of projects. Also, QSAR is relevant to the construction industry's problem. Therefore, the study implies that QSAR should be adopted by the construction industry since they are capable of solving the challenges plaguing it.

Keywords**:** Academic researches, Construction Industry, Challenges, Quantity Surveying Research relevance.

INTRODUCTION

The construction industry is characterized as a project-based industry relating different organizations, professions, agencies to design and implement simple and complex constructions. Based on the nature of the construction industry, several challenges tend to garner up which require the conduct of research to solve. These challenges faced by the construction industry in developing countries, are been described in different previous studies, as being influenced by competition, quest for increase productivity, project complexity and performance (Oyegoke, 2006; Kulatunga, Amaratunga and Haigh, 2009; Athanasius, 2016; Emiedafe, 2017; Iheme and Chiagorom, 2018). In order to enhance improvement in the construction industry and derive appropriate solutions, these challenges are investigated. Investigation in form of research is carried out by the academics, as argued by Barrett and Barrett (2003) that practitioners in the industry do not have sufficient experience to carry out research. Research depicts the search for knowledge or as any systematic investigation to established facts. Globally, several studies have been conducted to determine how research outputs have solved urgent industry challenges in the areas of business management, healthcare, information system (Nwokah, Kiabel and Briggs, 2009; Panda and Gupta, 2014; Noor, Ismail and Arif, 2014; Akker and Spaapen, 2017). Likewise in construction, studies have established that academic research is useful for practice (Gann,

2001; Hampson, Kraatz and Sanchez, 2014). However, the construction industry faced with ranges of challenges is presumed to employ research outputs for possible solutions. Yet, the construction practitioners still choose to occupy a separate traditional world from the academics (Nutley, Walter and Davies, 2002).

Quantity surveying is one of the knowledge-based professions in the construction industry which acquires and accumulates valuable knowledge (Oyediran, 2011). According to Tushman, O'reilly, Fenollosa, and Kleinbaum (2007), the research outputs produced by academics in this quantity surveying profession provide theoretical and methodical solution to urgent challenges and subsequent utilization in practice. Yet, Ajobiewe, Awodele and Ogunsemi (2015) posited that academic research are not been used by the firms in the construction industry to combat their challenges. Nevertheless, academic research is pragmatic in nature because it focuses clearly on developing theoretically and methodologically robust solutions to urgent problems ideally working closely with practitioners. In this wise, academic research should be carried out to enhance industry's performance through the application of the recovered facts as opined by Barrett (2007) that research enhances industry practices. According to Toffel (2016), a research is relevant if it has the potentials to improve practitioner's decision making. The applicability of academic research can be determined or viewed from two levels; theoretical and practical relevance levels. The theoretical relevance constitutes the appropriate content of the field and what the appropriate methods of research should be while the practical relevance constitutes the usefulness of the research to practitioners in practice. The latter is important in achieving the aim of any study and in determining its usefulness.

This study seeks to fill this gap in the body of literature by first assessing the severity of the construction industry challenges and determine the responsiveness of quantity surveying research outputs to combating challenges plaguing the construction industry in Nigeria.

Review of Challenges in the Construction Industry

The complex nature of the construction industry has led to different challenges which are being described in different studies. Kale and Arditi (2002) terms the challenges as threats to the competitive position of the construction industry. Koksal and Arditi (2004) describes it as construction industry decline that is, failure to anticipate, recognize, avoid, neutralize, or adapt to external or internal pressures that threaten the company's long-term survival. Also, Hughes (2010) describes it as the pressure underlying the construction industry. But the challenges facing the construction industry are challenges plaguing the activities, operations, organization and management of construction in the industry thereby retarding development. Several studies have been done to investigate the problems of the construction industry globally.

In Nigeria, Emiedafe (2017) examined five major challenges faced by the Nigeria's construction industry which sprunged from the opportunities accorded the industry. The challenges identified include scope creep, inadequate funding of projects, kickbacks from corruption, poor quality control and abandonment of project. Also, Iheme and Chiagorom (2018) see challenges as the limiting factors to the development of the construction industry in Nigeria. The study identified poor planning, lack of attention to drainage, finance, corruption, poor management, personnel, manpower over machine, bureaucracy, foreign exchange fluctuations and insecurity. Special challenges facing the construction industry in Nigeria, which are collated from previous studies included untimely completion of construction works, incompetent & dishonest contractors,

limited recognition of the industry by government, low profit margin by contractors, porosity of tendering procedures and political influence in contractors' selection. Other challenges which were adopted in developing the questionnaire for the study included over-specification in designs (over designs) by client, aiding corruption by construction professionals, dominance/reliance on traditional procurement method, dishonoring of payment certificate by clients, cost overrun of construction projects, incessant changes to design during construction, time constraint/demand for accelerated completion by clients, poor material management on site, to mention but a few.

Relevance of Academic Research

Research relevance has been a topic for serious consideration for several years, even in developed countries (Suwanwela, 2007). The issue appears to be more acute for developing countries where wider competing demands meet with more serious limitations. There are multiple and divergent users and beneficiaries of the knowledge generated from research, for instance; policy makers, action implementers, service providers, and wider communities. National competitiveness is also linked with research and innovation. The benefit of research may derive from the process rather than the products. Assessment of the relevance and utility of research thus becomes complex as posited by Labaree (2008) that relevance is difficult to define because it is in the eye of the beholder. Relevance, according to the Merriam Webster's dictionary means the direct relation to the matter at hand, and in the practical sense means 'applicability' while dictionary says it means having some sensible or logical connection with something else such as a matter being discussed or investigated and/or having some bearing on or importance for real-world issues, present-day events, or the current state of society. But Booker, Bontis and Serenko (2008) described research relevance as the degree to which academic theory influences industry practices.

Presumably, academic research is relevant if it has some kind of clear connection to issues and problems in practice, particularly if it promises to be useful to practitioners who are trying to deal with issues and resolve challenges. According to Suwanwela (2007), the relevance and utility/applicability of research in developing countries must be viewed both from the positive side which demonstrates its contributions to human development, and from the negative side, which shows the dire consequences when this aspect is lacking. That is, relevance and utility issues for research in developing countries clearly vary according to the situation in the country, both regarding its state of socio-economic development in general and the functioning of its research activity in particular. But according to Gopinath and Hoffman (1995), there are two main divisions of the relevance of academic research, which are theoretical and practical relevance. The study identified five practitioners' needs that can be used as a frame of reference in assessing the practical relevance of research: descriptive relevance, goal relevance, operational validity, non-obviousness and timeliness. This study adopted these measures of relevance for quantity surveying academic researches because none has been suggested by previous studies.

Research in Quantity Surveying

Academic research, according to Dawson (2002), is an applied research done to solve specific, practical questions; for policy formulation and administration. The academic roof of a profession must be well established so the profession can stand the test of time. Quantity surveying is a knowledge-based profession in which its professional acquires and accumulates valuable knowledge or capability. Therefore, academic research in quantity surveying is undertaken to add value primarily to the financial and contractual management of construction projects at the

pre-construction, construction and post-construction stages as well as contributes to overall construction project performance by acquiring, developing and deploying appropriate competencies (Nkado and Meyer, 2001). Furthermore, Ajobiewe et. al. (2015) classified academic research in quantity surveying based on the core and optional competencies of the quantity surveyors which includes construction contract practice, construction technology and environmental services, economics of construction, procurement and financial management, computer literacy and information technology and project management. Based on this classification, the relevance of quantity surveying researches was assessed from the perspective of the academics and practitioners.

METHODOLOGY

This study adopts the survey method in which the questionnaire was used to collect primary data on the level of severity of construction industry challenges, challenges solvable with quantity surveying research and relevant of quantity surveying research to these challenges. Total of one hundred and fifty-two (152) quantity surveyors, who are corporate members of the Nigerian Institute of Quantity Surveyors (NIQS) in south-west, Nigeria was stratified selected from those in practice and public universities offering quantity surveying. The quantity surveyors were contacted because it is presumed that they have sufficient knowledge about academic research undertaken by academics in the profession. The questionnaire involved set of predetermined questions on a 5-point likert scale. Out of the 152 questionnaires administered, only fifty-nine (59) were considered appropriate for analysis and this represented a return rate of thirty-nine percent (39%) which is considered sufficient for the research, as posited by Moser and Katton (1999) that the result of a survey could be considered as biased when the return rate is less than 20-30%.

The demographic information of respondents was analyzed by frequency distribution and percentage, the severity index, as used by Mendenhall, Beaver and Beaver (2009), was employed to analyze the severity of construction industry challenges. The mean item score was used to analyze and rank the challenges solvable by quantity surveying academic research as dividing the maximum possible mean score by 2, then scores below the resulting number considered a relatively low score and scores above it considered a high score and relative importance index used to rank the relevance of quantity surveying academic research. While Mann-Whitney U test on 5% significant level was used to determine the difference in the sample means between practitioners and academics' perceptions on the subject matters.

$$\text{Severity Index (S.I)} = \left[\sum_{i=1}^{i=n} wifi\right] x\ 100\%/n \quad (1)$$

Where, f_i is the frequency of response, w_i is the weight for each rating and n is the total number of responses.

RESULTS AND DISCUSSION

Background Information of Respondents

From Table 1, the demographic information of the respondent shows that the practitioners and academics contacted had an average of 5years working experience in the construction industry and academic respectively. Over 45% of the practitioners are engaged in consultancy services; 32% in government agencies and 23% in contracting business. About 60% of the practitioners

had obtained their highest qualification in either Higher National Diploma (HND) or Bachelor Degree (BSc/ B.Tech), 32% had either Masters of Science or Technology (M.Sc./M.Tech) and about 9% had Master's in Business Administration (MBA) while 40% of the academics are Assistant Lecturer and 60% are between Lecturer I and Senior Lecturer in public Universities. Among the academics contacted, over 80% had completed their Master's thesis while less than 20% had completed PhD. This implied that both practitioners and academics have spent averagely five years in construction industry and universities respectively and therefore have sufficient experience to respond to the questionnaire. Also, there are few quantity surveyors in contracting firm to communicate the usefulness of quantity surveying academic research to the challenges in construction.

Table 1: Demographic Information of Respondents (Practitioners and Academics)

Practitioner		**Freq**	**%**	**Academics**		**Freq**	**%**
Years of Experience	1-5yrs	10	22.7	Years of Experience	1-5yrs	6	40.0
	6-10yrs	23	52.3		6-10yrs	4	26.7
	11-15yrs	6	13.6		11-15yrs	4	26.7
	16-20yrs	1	2.30		above 20yrs	1	6.60
	above 20yrs	4	9.10				
	Average 4.66yrs				**Average 5.13yrs**		
Business Engaged	Consultancy	20	45.5	Cadre	Senior Lecturer	2	13.3
	Contracting	10	22.7		Lecturer I	2	13.3
	Government				Lecturer II	5	33.3
	Agencies	14	31.8		Assistant Lecturer	6	40.0
	Total	**44**	**100.0**		**Total**	**15**	**100.0**
Qualification	HND/BSc/BTech	26	59.1				
	MBA	4	9.10	Completed	Masters	13	86.7
	MSc/MTech	14	31.8	PG Thesis	PhD	2	13.3
	Total	**44**	**100.0**		**Total**	**15**	**100.0**

Nigerian Construction Industry Challenges

In this study, the thirty-two (32) construction industry challenges identified from literatures were assessed based on the level of severity and level of being solved by quantity surveying academic research. The result revealed that the construction industry challenges are severe but the most severe challenges includes the porosity of tendering procedures, cost overrun of construction projects, untimely completion of construction works, incompetent & dishonest contractors, less attention given to risk management and dearth of innovation due to lack of investment in research and development. This is in contrast to the finding of Datta (2000), which identified the most severe construction industry in developing country like Botswana to include profitability, research and development, training, price and cost, dissatisfaction of client and fragmentation. In the same vein, Proverbs, Holt and Cheok (2000) identified the most severe challenges fronting the UK construction industry, which are poor reputation and the proliferation of cowboy builders. Ofori (2001) identified key challenges facing the construction industry, in the developing countries like Sri Lanka, Singapore and Malaysia to include globalization, culture and environment. This implied that the severity of challenges facing the construction industry is

connected to its resident country. In Nigeria, The finding of this study is slightly in line with the finding of Iheme and Chiagorom (2018) which identified corruption, inadequate funding, constant rising of project cost and lack of skilled labour as the most severe challenges of the Nigeria's construction industry. For the Nigeria's construction industry, the implication from the study is that the most severe challenges are found to be interrelated.

Furthermore, the construction industry challenges discovered to be severe were further assessed to determine the ones solvable by quantity surveying (QS) academic research. The result revealed that the most of the severe construction industry challenges are solvable by QS academic research. Since there are no known previous studies conducted to determine the construction industry challenges solvable by QS academic research and the agreement that existed between the perceptions of academics and practitioners on the subject matter. This study posits that the Nigerian construction industry's problem most solvable by QS research is cost overrun of construction projects while the problem less solvable is the shortage of workers/absenteeism of workers.

The Relevance of Quantity Surveying Academic Research

The relevance of quantity surveying (QS) research to the construction industry challenges was determined by relative importance index. Practitioners and academics agreed that the quantity surveying academic research is very relevant for construction industry challenges with a relative importance index found above 0.70. The construction industry challenges considered by both groups, to which QS academic research are moderately relevant includes incompetent & dishonest contractors, limited recognition of the industry by government, low profit margin by contractors, over-specification in design by client, aiding corruption by construction professional, shortage of workers/ absenteeism of workers, unstable regulatory and policy of government and lack of foreign investment flow into the industry.

Although, academics pointed out that QS research have very high relevant for problem of cost overrun of construction projects in the industry. This implied that QS academic research is relevant for construction industry challenges though very relevant for the cost overrun of construction projects. Nevertheless, the agreement between the academics and practitioners implied that QS academic research is important in tackling urgent, current and persistent challenges in the industry. This is in support with the finding of Trappes-Lomax and Ellis (2003) that research should be relevant to the practical challenges faced by users. Also, the finding of Booker *et al.* (2008) that a research is relevant as the degree at which it influences industry practices.

Further assessing the relevance of quantity surveying (QS) academic research to urgent challenges in the construction industry, academics in the selected tertiary institutions were requested to assess the research undertaken by them in the past based on some elements of practical and theoretical relevance of academic research. Table 2 showed that QS research undertaken in the past relevant to the construction industry problems since QS academic research is seen to possess the entire elements assessed which is found above the mean score. For practical relevance, goal relevance is found to be very high while in the case of theoretical relevance, research methodology/method was considered very high. This corroborated the study of Gopinath and Hoffman (1995) where the relevance of a research was determined based on practical and theoretical relevance. But the study further showed that quantity surveying (QS)

academic research is very relevant in terms of the accomplishment of goal and the appropriate research method/methodology employed. That is, QS academic research is able to accomplish the aim and objectives sets and being conducted with the appropriate research methods. This result is in similarity with the finding of Nwokah *et. al.* (2009) that research methodology assumption is one of the essential approaches to ensuring the right quality of a paradigm in research. Also, it corroborate the finding of Hughes (2010) that for a research to be meaningful and well designed, it must be perfectly done using the right research method and asking the appropriate research questions. This implied that quantity surveying academic research is relevant for combating challenges in the construction industry since all the elements assessed are found adequate in QS research and because of its capability to accomplish set goal (that is, the aim and objectives) for which the research are being carried out and are undertaken with the appropriate research method/methodology.

Table 2: Relevance of QS Academic Research (Academics' opinion only)

Research Elements	Mean	Rank
Practical Relevance		
Goal Relevance	4.30	1
Timeliness	3.90	2
Descriptive Relevance	3.80	3
Operational Validity	3.50	4
Non-obviousness	3.50	4
Theoretical Relevance		
Research method/methodology	4.10	1
Appropriate research question/logic	3.80	2
Source of data/empirical bases	3.70	3
Verification of findings/replicable	3.60	4

Level of Agreement between Practitioners and Academics

A Mann Whitney U test was carried out to determine if there was significant agreement in the perception of quantity surveyors who are practitioner and academics with respect to the research hypotheses. This includes the agreement on the construction industry challenges solvable by quantity surveying (QS) academic research and the relevance and suitability of QS research for construction industry challenges. The decision for agreement was based on a 5% significant level, that is, the significant values found below 5% are considered to have significant agreement on the subject matter, and vice versa. The result shown on Table 3 reflects that there is a significant agreement between the perception of academics and practitioners on the construction industry challenges solvable by QS academic research, with a significant value of 0.001. Also, that there is a significant agreement between the perceptions of academics and practitioners on the relevance of QS research with significant values of 0.009.

Table 3: Test of Significance

	SR	RQR
Mann-Whitney U	275.000	319.000
Asymp. Sig. (2-tailed)	.001	.009

SR: Construction Industry Challenges Solvable by QS research
RQR: Relevance of QS research

CONCLUSION

This paper has attempted to examine the severity of Nigerian construction industry challenges, the extent to which researches can solve these challenges and comparison between practitioners and academics' perceptions on the subject matter. The result reveals that the most severe challenges in the Nigerian construction industry are interrelated, in which the flaws experienced at the process of tendering leads to the selection of incompetent contractor and other severe challenges during the execution of the project. The construction industry challenges are solvable by quantity surveying academic research. Although cost overrun of construction projects is the problem most solvable by quantity surveying academic research while shortage of workers/absenteeism of workers is less solvable by QS academic research. Quantity surveying academic research is relevant and suitable because it is important in tackling urgent and persistent challenges, and possesses the right ingredients and quality for construction industry challenges. From the academics point of view, quantity surveying academic research is relevant because through the appropriate research method, quantity surveying academic research is able to accomplish the aim and objectives sets for each research conducted. Furthermore, there is a need for construction clients and consultants to employ the best approach of procuring construction projects so as to be able to envisage and manage risks since the most severe challenges commences from the point of tendering for a project. Conclusively, the implication is that quantity surveying academic research should be adopted by practitioners to solve challenges in the construction industry since they are undertaken with the goals of improving the performance of the industry.

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