

A REVIEW OF CONSTRUCTION MANAGEMENT AND ECONOMICS RESEARCH OUTPUTS IN NIGERIA: TOWARDS A SUSTAINABLE FUTURE

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ABSTRACT

Construction related research holds the key to a sustainable future. This is because of the potential of research to improve practice. In order to identify the current state of knowledge in construction management and economics research. This article aims to unpack the question by evaluating three (3) decades of longitudinal data into construction management and economics research across seven (7) foremost Nigerian universities. A review of completed PhD studies was done to identify dominant research topics, methods and trends over the study period. It is evident from qualitative analysis that 69.9% of the critical investigation focused on topics related to procurement/project performance, maintenance, cost modelling/construction economics and human resource/productivity. Despite, a moving trend in the topics investigated. There was no evidence of critical research in the area of sustainability. Besides a call for paradigm shift in present day research activities, the concept of sustainability, which has become a dominant policy in the developed world, needs to be enshrined. In other words, there is a need to really examine the extent to which current policies and activities pertaining to sustainability in the construction industry is been integrated into built environment planning and development in Nigeria.

Keywords: Critical research; Nigeria; Paradigm shift; Sustainability

1. INTRODUCTION

The construction industry's output plays a crucial role in the socio-economic growth of any nation. More so, the impact of construction industry on the economy has been a subject of academic debate in several fields. Empirical results and arguments by construction researchers present evidence in support of a positive relationship between construction industry output and economic growth (Ofori et al., 2012; Ofori, 2014; Oladinrin et al., 2014; Ramsaran and Hosein, 2006). The construction industry produces constructed/space for human activity and according to Laryea and Leiringer (2012) the quantity and quality of human life and productivity of humans is dependent on the built environment. Hence, built environment plays a crucial role in driving development.

Currently, Nigeria needs a massive infrastructure overhaul due to several years of neglect and lack of a strategic plan for the economy.

The Nigerian Bureau of Statistics (NBS, 2010) purports that 60.9% of Nigerians are poor (i.e. earn below US\$ 1/day). Additionally, the Nigerian construction industry contributed 2.19% to the Gross Domestic Product (GDP) in 2013 which makes it 7th largest sector (NBS, 2013). Despite, the meagre contribution of the construction to the economy, empirical evidence has shown a positive relationship between construction industry output and GDP (Oladinrin et al., 2014). Therefore, development of "capacity, capabilities, knowledge and technologies" through built environment research (Laryea and Leiringer, 2012) can be a driver of economic growth in developing countries like Nigeria.

Construction management and economics is a component of built environment research. Review of top construction management and economics journals as identified by Wing (1997) and Bröchner and Björk (2009) has shown a limited number of contributions by researchers affiliated to Nigerian institutions (Abudayyeh et al., 2004; Al-Sharif & Kaka, 2004; Ke et al., 2009; Laryea, 2011). Thus, a review of a past studies conducted in department of Building and Quantity in Nigerian Universities (i.e. unpublished PhD research) would assist in identifying current status and gaps that exist in knowledge. Hughes (1994) argues that completed PhDs is a measure vibrancy of a research community. Therefore, this study reviews unpublished PhD research studies in construction management and economics-related disciplines in Nigerian Universities over a twenty-nine year period between 1984 and 2012. This is aimed at addressing the following questions:

1. What is the coverage of construction management and economics topics during the period?
2. What are the dominant research methods during the period?
3. How did the theme/focus/interest of construction management and economics change during the period?

The results of this study would serve as a guide for future directions of built environment reserve which is a prerequisite for improving practice, expertise and extending knowledge.

2. BACKGROUND OF BUILT ENVIRONMENT RESEARCH IN NIGERIA

Tertiary institutions (i.e. polytechnics and universities) conduct research which guide practice. According to Nigerian Universities Commission (2014), there are 128 Universities in Nigeria; the universities comprise of 40 Federal-government owned, 38 State government-owned and 50 Private Universities. This shows that 55% of the Nigerian universities are government funded. This shows that government recognises the importance of universities as a 'generator' of new knowledge required to drive policy formation and economic development.

Built environment research is domiciled in universities and research institutes (Laryea & Leiringer, 2012). Academic departments such as architecture, building, engineering, estate management, planning and quantity surveying are responsible for conducting built environment research. However, these tertiary institutions are not able to meet planned vision and objectives due to lack of finance (Laryea & Leiringer, 2012).

This has led to low morale, brain drain, student unrest and labour disputes often reported in the media. Hence, there is a need to develop the capacity of built environment researchers so as to improve their impact on economic growth.

3. METHODOLOGY

This paper reports finding of the investigation of built environment research trends as depicted by the data collected from a sample of 30 unpublished PhD thesis completed in the Department of Building and Quantity Surveying of 7 Nigerian universities between 1984 and 2012 (see Appendix for details). An extensive review of unpublished PhD thesis titles and abstracts was done so as to extract and record data for the study. The study utilised a similar qualitative framework used in a similar study on review published papers presented at West Africa Built Environment Research (WABER) conference (Laryea & Leiringer, 2012). A closer look at the content of the titles and abstracts of the PhD thesis was conducted to:

- Identify the construction management and economics research topics addressed in the thesis.
- Identify the dominant research methods used during the period under consideration.

After the above data items were collected, built environment research trend were identified and analysed over a three arbitrarily selected intervals of ten, ten and nine years intervals respectively (1984-1993, 1994-2003, 2004-2012).

4. FINDINGS AND DISCUSSION

4.1 *Topics under investigation*

In this paper, for analysis, each PhD thesis was classified based on the main built environment research topic that it investigated. Although, the topic of some of the thesis could fall into several different categories, only the main topic is used to classify each thesis. The topics investigated in the PhD thesis during the study period were categorized into eight categories based on themes. The identified themes are: Cost modelling/construction economics; Project Performance; Maintenance; Human resource/Productivity; Construction materials; Housing; Project Management; and Cost / finance management, as shown in Table 1.

Based on the data presented in Table 1, it is obvious that project performance, cost modelling/construction economics, maintenance, and human resource/productivity were the major topics investigated during the study period. This is in agreement with evidence presented in (Laryea and Leiringer, 2012; Ofori, 2014) which shows that built environment researchers in West Africa conduct a limited amount of research on the following areas namely: Sustainable environment; Building Services; Law and governance systems; Globalisation; public private partnership; and Construction Industry.

Table 1: Major Research Topics of PhD Thesis

Topic	Number	Percentage (%)
Procurement/project performance	7	23.3
Maintenance	6	20.0
Cost modelling/construction economics	4	13.3
Human resource/Productivity	4	13.3
Construction materials	3	10.0
Housing	3	10.0
Risk	1	3.3
Project Management	1	3.3
Cost / finance management	1	3.3
TOTAL	30	100

4.2 Research Design

The classification of research design is based on terminologies adopted from Saunders et al. (2007: 108) and Laryea and Leiringer (2012). Hence, the research design for all the thesis were categorized into experiment, survey, case study, action research, grounded theory, ethnography, and archival research. The classifications are presented in Table 2.

Table 2 shows the frequency of research design used in the PhD thesis. A high reliance on survey research is observed. However, modelling, experiment and case-study was also used. The results generally agree with those obtained in a similar previous study (Laryea and Leiringer, 2012). The similarity with results obtained in Laryea and Leiringer (2012) study might be due to the significant number of paper presented in WABER conference by Nigerian authors.

Table 2: Research Method

Research Method	Number	Percent (%)
Survey	17	56.67
Modelling	9	30.00
Experiment	3	10.00
Case study	1	3.33
Action research	0	0.00
Grounded theory	0	0.00
Ethnography	0	0.00
Archival research	0	0.00

4.3 Trends of Research Topic during the Study Period

To discuss the trends in built environment research as depicted by the completed PhD thesis, the 29-year period under investigation was divided into 2 (10-year) and 1 (9-year) periods. Period one is from 1984-1993, period two is from 1994-2003 and period three is from 2004 to 2012. The frequencies of the topic are presented in Table 3 to identify changes and trend over time.

An increase in the number of completed PhD thesis was noticed. The numbers of completed studies increase from 5 in period one to 18 in period three.

Also, during period one, the greatest topic focused on was maintenance. However, this change in period two, the Cost modelling/construction economics, Procurement/project performance, and Human resource/Productivity received the greatest focus. In the third period, Project performance and maintenance were the major focus of most studies in the third period.

Table 3: Top Construction Research Topics during each Period

Topic	Period 1	Period 2	Period 3	Total	%
	1984-1993	1994-2003	2004-2012		
Procurement/project performance	0	2	5	7	23.3
Maintenance	2	1	3	6	20.0
Cost modelling/construction economics	1	2	1	4	13.3
Human resource/Productivity	0	2	2	4	13.3
Construction materials	0	0	3	3	10.0
Housing	1	0	2	3	10.0
Risk	0	0	1	1	3.3
Project Management	1	0	0	1	3.3
Cost / finance management	0	0	1	1	3.3

6. CONCLUSION AND RECOMMENDATIONS

There are several limitations to a study of this kind and valid criticisms can be made. The obvious limitation is the sample selected. The PhD thesis selected were those completed in Department of Building and Quantity Surveying. It is worthy to note that other built environment disciplines such as architecture, estate management, engineering and surveying were not included in the sample. Hence, drawing conclusions on the sample selected may be an issue due to the size and characteristics of the sample. However, the consistency with the results of Laryea and Leiringer (2012) study highlights the trends of built environment research in Nigeria. This is due to the quantity of publications authored by researchers affiliated to Nigerian institutions at WABER conference.

Notably, it is found that project performance, cost modelling/construction economics, maintenance, and human resource/productivity were the major topics studied by built environment researcher. In addition, there is an overreliance on survey research method using questionnaires for data collection. The results are similar to the results of Laryea and Leiringer (2012) study, which found an overreliance on survey research. This shows that most studies were targeted at generating generalization which is considered inadequate in proffering solutions to industry problems and developing theories.

Research is needed to improve practice and processes within the built environment. Therefore, there is a need for Nigerian built environment researchers to formulate research problems and chose new research methods which can generate and extend knowledge and theory. Adopting this strategy is important for research to have long term impact. This assertion is supported by earlier studies such as Ofori (2014); Laryea and Leiringer (2012); Fellow (2010); Pollack (2005); Wing et al. (1998). Although, Laryea and Leiringer (2012) study did not recommend the need for a paradigm shift in built environment research.

There is a need for built environment research to re-strategies in order to improve their outputs and impact of such outputs on the Nigerian economy.

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