Quality Culture Implementation and Militating Factors in Construction Organisations in Nigeria

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Total Quality Management (TQM) has been proffered as a means to solving performance problem. Despite the benefits of TQM, construction stakeholders are yet to fully implement TQM and use the technique in resolving quality issues in Nigeria. Quality culture has been highlighted as key to TQM yet there is a dearth of research into quality culture in the Nigerian construction industry and thus the need to examine quality culture among construction organisations. The aim of the study is to assess the understanding of quality culture for proper implementation by identifying factors used in defining quality, assessing construction of stakeholders' perception of quality as culture and the evaluation of prevalent barriers to quality culture implementation for the purpose of improved quality performance. Forty-one construction organisations comprising client, consulting and contracting organisations participated in a purposively selected sample. Mean score and analysis of variance test were used to understand the underlying quality culture being examined. The findings revealed that conformity to specification, customer satisfaction and elimination of defects are perceived to be quality culture criteria, while factors such as lack of standardisation , tendency to cure symptom rather than get to the root cause of a problem, are considered as the constraints. It is advocated that quality should be defined and embraced as a cultural phenomenon while project managers or business owners should embrace quality culture from perspectives of dealing with the problem rather than curing the symptoms syndrome.

Keywords: Construction organisation, quality culture, quality culture barriers, quality culture implementation, quality perception.

INTRODUCTION

Achieving total quality management requires all members of an organisation to participate in processes improvement. However, process improvement is partly related to the overall success that often stems from the underlying culture in the organisation for long term customer satisfaction. The concept of quality has been the focus of attention in a number of organisations (be it private or public) across a range of disciplines (Kazaz, Ulubeyli&Turker, 2004). The finished product in any industry should be manufactured to a required standard, one that provides customer satisfaction and value for money (Rustom&Amer, 2006). Therefore, in order for construction clients and end users of completed facilities to realise best value, the concept of quality culture must be stressed in the industry to improve the quality of product and services offered by various organisations (Idrus&Sodangi, 2010). Construction organisations impact the quality of life for building facilities and play a major role in a nation's economy and development. The growth of a country and its development status is generally determined by the quality of its infrastructure and construction projects. Scholars tend to agree that the origin of any organisational culture is grounded in a rich set of assumptions about the nature of the world and human relationships (Tharp 2009). The culture in any organisation is formed by the beliefs, behaviours, norms, dominant values, rules and the climate (DTI, 2001; Schein (2011). According to Schein (2011), organisational culture is a set of commonly held values and beliefs 'deep' within the organisation with myriad of behavioural patterns that combine to mould the organisation's identity. Therefore, organisational culture is used to describe the shared beliefs, perceptions, and expectations of individuals in an organisation (Boan&Funderburk, 2003). It guides and controls employee behaviour and action (Thomas, Marosszeky, Karim, Davis, &McGeorge; 2002). Forbes Insight (2014) described culture of quality as a continuum with one end being that of perception and the other, embracement of quality vision. At the first end, the quality program is perceived as a mere set of slogans in the organisation while at the other, each and every employee from entry level to the seat of the chief executive embrace the organisation's quality vision, values and goals as a way of life. Poor quality of construction in Nigeria has been generally attributed to human attitudinal problems and lack of implementable standards

(Oyedele, Jaiyeoba, Kadiri, Folagbade, Tijani, & Salami, 2015).

The dominant theme in much of the available management literature emphasizes interest in culture as an instrument for improving organisational performance (Harvey &Stensaker, 2008). DTI (2001) stresses that understanding the culture of an organisation, and the use of its knowledge to successfully map the steps needed to accomplish a successful change, is an important part of the quality journey. Thus, the need to achieve quality of finished product in construction industry is as important as any other industry (Rustom & Amer, 2006). Quality has been a major imperative lacking in Nigerian construction industry with a number of construction firms operating poor salary package for the workers. This is established in the works ofFagbenle, Ogunde, and Owolabi (2011). Thus, construction labour tend to focus more on the number of hours spent on the work and quantity of work done rather than the quality of work executed. Oyedele et al., (2015) advocated the need to create culture and awareness of quality in the Nigerian construction industry. This confirms lack of quality culture practice which weighs heavily on the observed problem of the perception of quality in construction industry in Nigeria. Also, the industry encounters different constraints in the implementation of quality culture. In regards to this, all stakeholders involved in construction projects have a role to play in order to deliver a quality product. This study is set to assess the perception of quality in construction organisations with a hypothesis that there is no significant difference between the perception of quality among client, consultant and contracting organisations on the one hand and also small, medium and large construction organisations on the other. It also assesses the constraints encountered in the implementation of quality culture in Nigeria with the aim of improving the emphasis on the understanding of quality culture for proper implementation. Therefore, practitioners in the Nigeria construction industry are provided with additional document in TQM that is useful in implementing quality culture. This work provides basis for further research in the academia having established the perception of quality culture and

militating factors in its implementation in Nigeria.

Relationship among Culture, Quality and Performance

Lack of success in construction quality is a global issue. According to FIDIC (2004), failure to achieve appropriate quality of construction is a worldwide problem. Today, the construction industry is one with poor quality emphasis compared to other sectors like manufacturing and service sectors. Many criticisms have been directed to the industry for generally poor workmanship (Sodangi, Idrus&Khamidi; 2010). The final product, the processes, the parties and the materials are under tremendous pressure and criticisms for better quality in construction (Mahmood, Mohammed, Misnan, Yusof&Bakri; 2006) as failure of any of the parties will seriously affect the quality of the final project (Sodangi et al., 2010). This implies that organisational culture is a primary factor in relation to organisational ills or success as the case may be. The leadership skills that are prevalent in an individual or an organisation thus, become a factor of performance. Since leaders mould culture, the norms, values and practices that are apparent in any form of establishment will have a resultant effect on the final outcome.

The study by Adenfelt and Lagerstrom (2006) revealed that culture is a great enabler in knowledge acquisition and management. Marrewijk (2007) discussed likely challenges a firm would face when the culture and the structure do not align. Cheung, Wong and Wu (2011) emphasized the need for perfect cultural orientation for successful project outcome. Summarily, the importance of culture to employees' understanding of the firm, the expected behaviour, the needed tools for greater achievement and performance had been emphasized and this is corroborated in the work of Bulach, Lunenburg and Potter, (2012). Quality performances of projects are adversely affected by the different factors according toJha and Iyer (2006). This includes; conflict among project participants; hostile socio-economic environment; harsh climatic condition; PM's ignorance and lack of knowledge; faulty project conceptualization; and aggressive competition

during tendering whileWindapo (2018) highlighted formal education, training, task-oriented ideals and futuristic decisions as drivers of quality.

The Perception of Quality

Project success measures have long been established on the criteria of cost, time and quality (Chan, Scott & Lam, 2002). The concept of quality has long been analysed by numerous representatives from many academic and business backgrounds (Ruþevièius, 2006). The concept of quality rests on its management. Defining quality is not as easy as it may seem, because different people have different ideas of what constitutes quality. Quality is only useful and of value (PHCC, 1996) when it means the same thing to all the people in an organisation. Arditi and Gunaydin (1997) define quality in terms of conformance to the agreed requirements of the customer and a product or service free of deficiencies. Customer needs are the key driver of organisation quality programs although few organisations actively involve customers in formal quality discussions (Forbes Insight, 2014). Quality in construction is directly connected with conformance to specifications fitness for use (Mahmood et al., 2006). The construction industry tends to define quality as the ability of products and processes to conform to the established requirements. These requirements are established characteristics of a product, process or service as specified in the contractual agreement (Sodangi et al., 2010). Ruþevièius (2006) concluded that quality should be defined in terms of the total sum of a product's features that ascribe its suitability to meet all expressed and implied consumer needs as determined by the product's conditions of use and its purpose. Construction quality in particular, can be seen as very difficult to define due to the uniqueness of its methods, product and work force that can be involved in a single project (Farooqui& Ahmed, 2009). Despite this, one universal and common definition of quality is yet to be agreed upon (Ruþevièius, 2006) hence, the need to know the perception of construction organisations in defining quality in the Nigerian construction industry which will eventually help stakeholders in the industry to hinge quality culture practice on the perceived norm for improved performance in comparison to best practice.

Constraints in Implementing Quality Culture

The need for quality and its instutionalization in construction has been emphasised. Several attempts by a number of firms have been jeopardised by a series of challenges or barriers ranging from hostile environment conditions, lack of technology advancement, leaders' ignorance among others (Jha&Iyer, 2006;Hoonakker, Carayon&Loushine, 2010; Al-Jalahma&Gallear, 2010)). Implementing quality culture and neglecting potential quality culture implementation constraints result in poor quality of product. It, therefore, becomes imperative that construction organisations understand and address the barriers, before and during project execution. Previous researchers grouped the barrier in attaining quality into categories such as top management barriers, planning barriers, operational barriers, process barriers, resource barriers, cultural barriers and environmental barriers. In practice, these barriers need to be identified and addressed in order to facilitate the introduction of the high-performance management practices required (PHCC, 1996; Aoieong, Tang & Ahmed, 2002; Shen& Tam, 2002).

RESEARCH METHOD

Quantitative data collection was done through a questionnaire survey and the data analyses were carried out using statistical package for social sciences (SPSS). Surveys are useful in describing the characteristics of large population and ensuring accurate data from targeted sample. Also, a more accurate result from which conclusions are drawn and important decisions taken is ensured. A sample of 123 was purposively selected from contracting, consulting and client organizations in Lagos State. A total of 12 factors were identified from literature for the perception of quality culture while 14 factors were identified for the constraints in the implementation of quality culture accordingly. Measures of central tendency and dispersion were used to observe the underlying quality culture issues set out to be discovered. A total of 89 questionnaires were received from the respondents which represents 72% response rate. The demographic data revealed that senior staff

constituted the highest proportion (39%), site engineer 15% and project manager (15%). Ten percent of respondents are quality control officers, 7% are assistants to senior officers, 5% managing directors, 5% partners, and 5% are construction manager. The respondents are professionally qualified. Corporate members account for 66% of the respondents while 2% of the respondents are fellows of their professional institutes. Organisational distribution includes 42% consulting firms, 40% contracting firms and 18% of client organizations. The size of organisation of respondents indicates that organisations surveyed are predominantly large and medium sized companies, each having 41% respondents while small sized firms accounts for 18%.

Presentation and Analysis of Data
In order to establish the concept of quality from the perception of the respondents, a three point Likert type of scale (3-Strongly agree, 2-agree

and 1-not agree) was used to assess the perception of quality in the Nigerian construction industry. Table 1 reveals the perception of quality by various respondents. The respondents, based on their experiences in construction, strongly agreed that conformance to specification, customer satisfaction, elimination of defects and meeting contract requirement are the top most quality culture issues. They also agreed that other eight quality culture issues were also agreed by respondents since none of the variables fall below the Mean scale of 2 and the least rated variable is quality culture is perceived as a cultural phenomenon. Thus, it can be concluded that quality in the Nigerian construction industry is strongly perceived as conformance to specification, customer satisfaction, elimination of defects and meeting the contract requirement and they barely perceived it as a cultural phenomenon.

Table 1: Perception of Quality

Perception	Mean
Conformance to specification	2.81
Customer satisfaction	2.73
Elimination of defects	2.53
Meeting the contract requirement	2.51
Minimization of rework	2.49
An asset of value	2.48
A competitive advantage	2.45
Minimization of cost	2.36
Scope achievement	2.34
An organizational ideology	2.31
A tool /technique to increase profit	2.15
A cultural phenomenon*	2.01

N=89, *N=87

Analysis of Variance Test on the Perception of Quality among Groups of Firms
An analysis of variance (ANOVA) test was also carried out at 95% confidence level to determine whether the three groups of firms have different perceptions of quality. In Table 2, the p-values ($p<0.05$) of the three groups reveal that the three groups of firms have the same perception about quality as there is no significant difference in their perception of quality.

Table 2: Analysis of Variance Test on Perception of Quality among Three Groups of Firms

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Perception of quality Measures	Contractor	Client	Consultant	f-value	p-value	Decision
Customer satisfaction	2.70	2.69	2.78	.235	.791	NS
Minimization of rework	2.35	2.50	2.64	1.675	.193	NS
Scope achievement	2.27	2.38	2.40	.304	.738	NS
Minimization of cost	2.45	2.45	2.22	.998	.373	NS
Conformance to specification	2.81	2.94	2.75	1.091	.341	NS
Elimination of defects	2.67	2.31	2.47	2.506	.088	NS
A tool /technique to increase profit	2.24	1.94	2.14	1.124	.330	NS
A competitive advantage	2.56	2.31	2.39	1.403	.252	NS
An asset of value	2.64	2.44	2.33	2.811	.066	NS
A cultural phenomenon	2.02	1.88	2.06	.358	.700	NS
An organizational ideology	2.24	2.38	2.36	.379	.686	NS
Meeting the contract requirement	2.54	2.44	2.50	.152	.859	NS

N=population=89, NS=not significant

Thus, by way of inference, quality in the Nigerian Construction industry is perceived as conformance to specification, customer satisfaction and meeting the contract requirement as ranked in Table 1. The analysis revealed that clients and contractors strongly define quality as conformance to specification whereas consultants' foremost definition is customer satisfaction. It follows that while contractors understand the need to conform to specification as required by the clients, the consultant would want to ensure that the client (customer) is satisfied with the product. Therefore, the challenge of quality performance in the industry is in the process where workers need to see quality achievement as a way of life for company's mission and not just a slogan for company's vision.

Analysis of Variance Test on the Perception of Quality among Size of Firms

A further analysis of variances (ANOVA) test was carried out at 95% confidence level to determine whether the three sizes of construction organisations differ in their perceptions of quality. Table 3 shows the result of the ANOVA test. The p-values ($p<0.05$) of the three sizes;

large, medium and small organisations revealed that the three groups of firms have the same perception about quality except in two variables; 'Scope achievement' and 'a cultural phenomenon'. The three levels of organisations ranked these two perception variables low based on the 3 point Likert Scale with small size organisation recording the lowest Mean of 2.00 (agree) and 1.40 (not agree) for 'Scope achievement' and 'a cultural phenomenon' respectively. While medium size organisations recorded Mean of 2.53 and 2.22, large organisations recorded 2.31 and 2.06 respectively. These two perception variables have a significant difference ($p<0.05$) among the organisations. Therefore, organisations might not perceive quality as 'scope achievement' and 'cultural phenomenon' as implied by the low ranking of these perception variables and the organization's disagreement on these perceptions. Importantly, small organisations would neither see quality as 'a cultural phenomenon' nor 'scope achievement'. This is an insight to the reason why projects handled by small scale organisations experience more delays with poor quality, after all quality is not perceived as a cultural phenomenon in their organisations

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Table 3: Analysis of Variance Test on Perception of Quality among Different Sizes of Organisation

Perceptions	Large	Medium	Small	Overall Mean	F	Sig

Customer satisfaction	2.64	2.84	2.68	2.73	1.316	.274
Minimization of rework	2.44	2.59	2.38	2.49	.749	.476
Scope achievement	2.31	2.53	2.00	2.34	3.153	.048
Minimization of cost	2.44	2.43	2.00	2.36	2.263	.110
Conformance to specification	2.75	2.86	2.81	2.81	.668	.515
Elimination of defects	2.47	2.62	2.44	2.53	.824	.442
A tool /technique to increase profit	2.17	2.21	1.93	2.15	.955	.389
A competitive advantage	2.36	2.57	2.38	2.45	1.307	.276
An asset of value	2.47	2.54	2.38	2.48	.450	.639
A cultural phenomenon	2.06	2.22	1.40	2.01	8.105	.001
An organizational ideology	2.28	2.35	2.31	2.31	.115	.892
Meeting the contract requirement	2.47	2.54	2.54	2.51	.108	.898

Constraints Militating the Implementation of Quality Culture in Construction Works in Nigeria

Table 4 describes the constraints involved in the implementation of quality culture in construction works in Nigeria. Using a 5 point Likert Scale, the top three constraints with the highest degree of importance are perception of quality, lack of standardisation, tendency to cure symptom rather than get to the root cause of a problem. However, no operation to benchmark, difficulty in measuring result and unique nature of construction were ranked least. Interestingly, there is no general definition of quality in construction; however it is the highest ranked constraint affecting the implementation of quality culture in construction works in Nigeria. Thus, it is safe to infer that organisations should have a clear perception of quality that would be vigorously implemented as a culture of the organisation.

Table 4: Constraints Militating against the Implementation of Quality Culture

Constraints	Mean
Perception of quality*	3.78
Lack of standardization	3.76
Tendency to cure symptom rather than get to the root cause of a problem	3.75
Lack of planning for quality	3.65
Lack of expertise	3.65
Transient (unstable) workforce	3.55
Lack of top management support	3.49
Low bid subcontracting	3.45
Lack of funds	3.44
Low education levels of field force*	3.44
Unawareness of quality improvement programme*	3.43
No operation to benchmark*	3.33
Difficulty in measuring result	3.04
Unique nature of construction	3.00

N=89, *N=88

Table 4 describes the constraints involved in the implementation of quality culture in construction works in Nigeria. The table reflects a mean score that is between 3.00 and 3.78 on the 5point Likert scale. As presented in Table 4, the top three constraints with the highest degree of importance are perception of quality (3.78), lack of standardisation (3.76), tendency to cure symptom rather than get to the root cause of a problem (3.75)**.** However, no operation to benchmark (3.33), difficulty in measuring result (3.04) and unique nature of construction (3.00) were ranked least. Interestingly, there is no agreed general definition of quality in construction; perception of quality is the highest ranked constraint affecting the implementation of quality culture in construction works in Nigeria. This implies the need to emphasize more and further researches in quality culture for the academic and the industry.

DISCUSSION

Construction organisations in Nigeria strongly perceive quality as conformance to specification, customer satisfaction, elimination of defects and meeting contract requirements. This finding agrees with the report of Arditi and Gunyadin, (1997) that quality is perceived as conformance to agreed requirements of customer. It also corroborates Mahmood et al. (2006) that quality in construction is directly connected with conformance to specifications. However, the study of Rupevieius (2006) advocated that quality should be defined in terms of the total sum of a product's features that ascribe its suitability to meet all expressed and implied customer needs. In contrast Arditi and Gunyadin (1997) added that a product can be of high quality and yet it may not meet customer's needs and vice versa. Therefore, the study revealed the definition of quality to include all the 12 identified factors in this research for proper implementation for achieving quality performance. Construction organisations in Nigeria majorly perceive quality as conformance to specification, customer satisfaction, elimination of defects and meeting contract requirements. Construction organisations neither strongly perceive quality as an organisational ideology nor a cultural phenomenon. The organisations might not perceive quality as 'scope achievement' and 'a

cultural phenomenon'. Majorly, small organisations would not see quality as 'scope achievement' a link to the reason why projects handled by small scale organisations might experience more delays with low quality output after all quality is not necessarily perceived as a cultural phenomenon in their organisations. This study also revealed the major hurdles in the course of implementing quality culture in construction works in Nigeria. These include perception of quality, lack of standardization, tendency to cure symptoms rather than get to the root of the problem and lack of planning for quality. The study of Shaari (2010) revealed lack of understanding as the highest constraint to the implementation of quality culture in companies and this corroborated the findings of this research in which stakeholders barely perceive quality as a cultural phenomenon hence, the revelation for the need to create more awareness and education for quality culture practice in the industry.

CONCLUSION AND FURTHER STUDIES

The findings of the research revealed the perception of quality across the types and sizes of construction organisations in Nigeria. There is strong indication that the construction industry professionals perceive quality as consisting of conformance to specification, customer satisfaction, defects elimination and compliance with contract requirements. There are other eight elements that they believed should be part of quality expression. It is noteworthy that quality is also perceived as cultural phenomenon but not as strongly as others. The implications of these perceptions are fundamental. They help to set the benchmark for definition of quality as essential knowledge parameter. Secondly the elements of quality perception also help to outline what could constitute quality control parameters in driving quality practice in construction.

Perception of quality was found to be the major constraint affecting the implementation of quality culture in Nigeria. Other major constraints affecting implementation of quality include lack of standardization, tendency to cure symptoms rather than get to the root of the problem and lack of planning for quality.

There is need for construction organisations to embrace all the variables that determines

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quality after all the focus is on satisfying the customer as the consultants embraced customer satisfaction as the most important factor in defining quality. Organisations would not be able to satisfy the customers if any of the determinants of quality is lacking most importantly the right understanding and or perception of quality. Quality should be a key objective of construction organisation hence, a cultural phenomenon and an organisation ideology in the right perspective. There must be culture of quality in organisations, the result of which will lead the industry to a better quality achievement on construction products.

In terms of contribution to knowledge, in the body of curriculum for teaching, all these elements agreed to should be entrenched. Quality control strategies manuals in organizations could use the 12 factors to design their quality control and assurance. It could be a checklist for quality control. Therefore, this research emphasises the need for construction workers and practitioners to embrace quality achievement as a way of life in the construction process for attaining company's mission and not just a slogan for company's vision. In addition great effort is required from the management to develop the whole company quality culture by planning for quality through the vision and mission statement of organisations. It is obvious that this study did not examine the relative weight of these quality parameters. It is hereby recommended that a further study to classify and weight the quality parameters could be done.

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