Journal of Construction Project Management and Innovation Vol. 7 SI (1): 1977-1994, 2017
ISSN 2223-7852
© Sustainable Human Settlement and Construction Research Centre 2017

ASSESSMENT OF ORGANISATIONAL LEADERSHIP FOR KNOWLEDGE MANAGEMENT PRACTICE IN THE NIGERIAN CONSTRUCTION INDUSTRY

Kulomri Jipato ADOGBO[1], Baba Adama KOLO[2], and Kene Christopher Lawrence NZEKWE[3]

[1] Department of Quantity Surveying, Ahmadu Bello University, Zaria, PH +2348033500589, Email: kjadogbo@yahoo.com
[2] Department of Quantity Surveying, Ahmadu Bello University, Zaria, PH +2348058424499, Email: babaadamakolo@yahoo.com
[3] Department of Quantity Surveying, Ahmadu Bello University, Zaria, PH +2348033080875, Email: kenecnzekwe@yahoo.com

ABSTRACT

The Nigerian construction industry (NCI) is described as being slow to innovate and lacking the capacity to deliver its services and products adequately. However, studies have continued to suggest ways of improving service delivery in the industry. One such way is for the NCI to adopt concepts of knowledge management (KM) to improve service delivery. The aim of this study is to assess organisational leadership for the adoption of KM practice in the NCI. The objectives of the study are to identify the attributes of leadership behaviours and KM; to establish the leadership behaviours exhibited by consulting firms in the NCI, and to establish whether the consulting firms in the NCI exhibit KM. The instrument used for data collection in this study was a structured questionnaire. The instrument was administered on senior management staff of consulting firms in the NCI. The number of questionnaires completed and returned were 110 which represented 45.9 per cent of the total questionnaires administered (240). The data collected were analysed in the form of descriptive statistics to achieve the study objectives. The findings of the study showed that of the three leadership behaviours, the firms surveyed exhibit transformational leadership behaviours more than the transactional and laissez-faire leadership behaviours. Also, the results also showed that the most prevalent KM behaviours exhibited by firms is 'information technology' and the least exhibited is 'strategy'. The existence of the transformational leadership behaviour and prevalence of KM behaviours suggests that there is a basis for the development of a framework for the adoption of KM practice by firms in the NCI. It is recommended that consulting firms formally adopt KM practice to improve their competitiveness in the market place and the quality of their service delivery in the NCI.

Keywords: Organisational leadership, knowledge management, consulting firms

1. BACKGROUND OF THE STUDY

The Nigeria construction industry (NCI) has been found to be lagging behind in terms of service delivery and capacity to satisfy the needs of its clients (Kolo and Ibrahim, 2010). There is consensus among researchers and professionals that the industry is slow to innovate (Odediran **et al**., 2012) and firms often lack the capacity to deliver. Despite the

state of the industry in Nigeria, studies have continued to suggest ways of improving service delivery: one such way is the recommendation for the NCI to adopt concepts of knowledge management (KM) to improve its service delivery (Anago, 2006: Sodiya **et al.**, 2006: NIQS, 2012).

The Egan Report (1998) identified the following five key drivers of change in the construction industry: (i) committed leadership, (ii) a focus on the customer, (iii) integrated process and terms, (iv) a quality-driven agenda; and (v) commitment to people. The Egan Report identified leadership as one of the five key drivers of change in the construction industry. Stogdill (1974) defined leadership as a process whereby an individual supports other group members in the learning processes needed to attain group or organisational goals. Stogdill (1974) also defined leaders as individuals who have a clear idea of what they want to do personally and professionally and the strength to persist in the face of setbacks and failures.

According to Robbins and Judge (2009), a major shift in leadership research came when researchers recognised the need to develop contingency theories that included situational factors. Research has shown that the traditional theories of leadership tend to believe that certain types of leadership behaviours work better in some cultures than in others. It had been suggested that the development of leadership research can be divided into the following stages (Toor, 2009): (i) classical approaches, which include motivation and trait theories during the first half of the 20th century, (ii) transactional approaches, which include behavioural and contingency theories during the 1950s and 1960s, (iii) transformational and charismatic leadership theories during the 1970s and 1980s and (iv) developments within the most recent decades. However, new concepts do not replace the earlier approaches but are concurrent with them in practice

Robbins and Judge (2009) cited House **et al**. (2002) (the Global Leadership and Organisational Behaviour Effectiveness (GLOBE) research programme), which gathered data on approximately 18,000 middle managers in 825 organisations, covering 62 countries. It is the most comprehensive cross-cultural study of leadership ever undertaken. One of the results emerging from the GLOBE programme is that there are some universal aspects to leadership. Specifically, a number of the elements making up transformational leadership appear to be associated with effective leadership. Literature has amply shown that transformational leadership is a form of leadership behaviour that is receptive to change management initiatives which include KM. Transactional leadership primarily emphasises control through rule compliance and maintaining stability within an organisation rather than promoting change. Laissez-faire leadership behaviour is the most passive and therefore the least effective of the leadership behaviours.

Crawford (1998), Crawford (2005), Crawford and Strohkirch (1997a, 1997b, 2000), and Crawford, Gould, and Scott (2003) established that transformational leadership was related to personal innovation. In their findings, transformational leaders were significantly more innovative than transactional and laissez-faire leaders. Innovation is a change management initiative which includes knowledge management (KM). KM is defined as "…a process by which knowledge is identified, captured, codified, stored, disseminated (shared/transferred), implemented (adapted, transformed, synthesised) and its impact measured for the benefit of an organisation" (Suresh, 2008). The behavioural manifestation of innovation is the ability to create and manage information and knowledge. Given the substantial relationship between innovation and transformational leadership, research looking at the relationship of the outcome of innovation (knowledge management) and transformational leadership seems more than deserving of investigation (Bryant, 2003; Crawford and Strohkirch, 2002).

Kasimu **et al.** (2012) developed a KM framework for civil engineering (CE) construction firms in Nigeria and conclude that the implementation depends on the commitment, attitudinal behaviours, dedication and personal interest of the top management and employees. Their findings suggest that leadership is a key factor for any KM initiative to succeed in the NCI. In the views of Odusami **et al.** (2003), not much work has been done on leadership, particularly in the NCI. Assessing leadership for KM in the NCI will reveal whether Nigerian consulting firms possess the leadership behaviours that will enhance the adoption KM practice in the NCI.

2. PROBLEM STATEMENT

The adoption of KM concepts has been suggested by researchers (Anago, 2006: Sodiya **et al.**, 2006: NIQS, 2012) as one of the ways by means of which service delivery in the NCI can be improved. The NIQS (2012) concludes that to deal effectively with the challenges of project complexities there is a need for effective leadership and knowledge among professionals. Bryant (2003) argued that there is a clear relationship between transformational leadership and knowledge management in organisations. The foregoing predispositions by Bryant (2003), Kamisu **et al.** (2012) and the NIQS (2012) serve as ample motivation for further investigation as to whether the consulting firms in the NCI possess the leadership behaviours that will facilitate the adoption of KM practice.

The aim of this study is to assess organisational leadership for the adoption of knowledge management (KM) practice in the NCI with a view to improving service delivery. The objectives are to identify the attributes of leadership behaviours and KM; to establish the leadership behaviours exhibited by consulting firms in the NCI, and to establish whether the consulting firms in the NCI exhibit KM.

3. LITERATURE REVIEW

3.1 The Nigerian construction industry

The construction industry is encumbered with problems relating to efficiency and productivity. Indeed the problems associated with the construction industry exists in developed and developing countries owing to the uniqueness of the industry (Ofori, 2000; Proverbs, Holt and Cheok, 2000). The activities of the construction industry have been observed to be highly knowledge-intensive (Windrum **et al.**, 1997 in Egbu and Robinson, 2005). Anumba **et al.** (2007) posited that too often the construction industry is known for its products (e.g. buildings, roads, bridges, dams and monuments) and not seen as an industry that provides services to its clients and customers. This is despite the very high levels of 'service-input' needed in the formation of construction products. The Nigerian construction industry (NCI) has been described as a "sleeping giant" in terms of service delivery and capacity to satisfy the needs of its clients (Kolo and Ibrahim, 2010 p653). The NCI contributes an average of 5 per cent to the annual gross domestic product (GDP) and an average of about one-third of the fixed capital investment (Omole, 2000). It accounts for employing approximately 8 million people, having a population of approximately 140 million. This represents approximately 20 per cent of Nigeria's workforce (National Bureau of Statistics, 2006). The NCI has become increasingly more sophisticated and challenging. Many projects are becoming larger and more technical, requiring high quality professional services of more specialised people who are driven by knowledge to add value and improve the prospects of the industry in Nigeria.

3.2 Leadership and innovation

Mullins (2007) cited a 2005 report by the Advanced Institute of Management Research in co-operation with the Chartered Management Institute which draws attention to the impact of leadership on innovation. The report refers to the dual role of leaders, first as motivators, inspiring people to transcend the ordinary, and second as professionals, designing an organisational environment that enables employees to be innovative. The primary challenges for organisational leaders in promoting innovation are to:

(i) recognise and develop appropriate leadership for the different stages of the innovation process, and

(ii) create organisational contexts that support complete innovation processes of different degrees of novelty.

One of the most important organisational problems is that attitudes are negatively disposed towards change. For this reason, one feels the necessity for modern leadership. Another aspect of this leadership is having the leaders higher up on organisational structure providing support such as knowledge management. Since the implementation of knowledge management is an underlying project in order to improve organisation systems, the multilateral support of the managers of different levels of organisation is crucial. Fullan (2001, p. 5) refers to the importance of relationship building as a basic component of the change process and effective leadership: “Leaders must be consummate relationship builders with diverse people and groups – especially with people different from themselves”. Effective leaders constantly foster purposeful interaction and problem solving and are wary of easy consensus.

Different types of leadership may also be most appropriate at different stages in the development of a business organisation. Leadership can also vary between public and private sectors and depend upon the size of the organisation. According to the DTI (2004), a primary challenge for organisational leaders in promoting innovation is to recognise and develop appropriate leadership for the different stages of the innovation process. How leaders are selected, supported, evaluated, motivated and developed is likely to differ depending upon the stage of the innovation process for which they are responsible. For instance, transformational leadership skills may be more useful in early-stage innovation activity, such as research and development (R&D) and product development but transactional leadership skills are also essential to the smooth functioning of commercialisation.

3.3 Types of leadership

3.3.1 Transformational leadership theory

At the core of transformational leadership is the concept of transformation, or change of the organisation. According to Bass (1985), transformational leadership best reflects this change. Burns (1978, p. 20) defined transformational leadership as a process in which "…leaders and followers raise one another to higher levels of morality and motivation". A chief element of transformation is the ability to cultivate the needs of the follower in a follower-centred manner. Transformational leadership is founded on empathy, understanding, insight, and consideration; not manipulation, power wielding, or coercion. Tichy and Devanna (1986, p. xii) opined that "Transformational leadership is about change, innovation, and entrepreneurship". The most important role of the transformational leader, however, is to paint a vision of a desired future state and communicate it in a way that causes followers to believe and have faith in the vision of

organisational transformation to make the pain of change worth the effort. Transformational leaders encourage their followers to be more innovative and creative.

Few researchers address the relationship between information management and leadership, and even fewer address the relationship between transformational leadership and knowledge management (Politis, 2001; Crawford, 2005). According to Klenke (1994), information technology and the actions of leaders create new organisational forms. Leadership is at the centre of the interaction between task demands, people, technology, and organisation structure. The relationship between innovation and leadership is difficult to articulate given the variety of functional leadership behaviours and the range of information technologies. Technology and leadership have reciprocal effects on each other; a change in one necessitates a change in the other. Brown (1994) opined that transformational leadership is needed in an evolving technological society. Today society is moving from controlled change to accelerated change nearly beyond control. Both attitude and behaviour must be the target of transformational leaders. Transformational leaders must meet market demands faster and better than before, given the increasingly interdependent economy.

Robbins and Judge (2009) conclude that transformational leaders pay attention to the concerns and developmental needs of individual followers; they change followers' awareness of issues by helping them to look at old problems in new ways; and they are able to excite, arouse, and inspire followers to put in extra effort to achieve group goals. They further posited that transformational leaders are able to motivate followers to perform above expectation and transcend their own self-interest for the sake of the organisation. Vroom and Jago (1988), in a study of R&D firms, found, for example, that teams led by project leaders who scored high on transformational leadership produced better-quality products as judged one year later and were more profitable five years later.

Yukl (2006) provides a set of guidelines for transformational leadership: (i) Articulate a clear and appealing vision of what the organisation could accomplish or become to help people understand the purpose, objectives and priorities of the organisation, and to help guide the actions and decisions of members; (ii) Explain how the vision can be attained and establish a clear link between the vision and a credible conventional yet straightforward strategy for attaining it; (iii) Act confident and optimistic about likely success, demonstrate self-confidence and conviction, and emphasise positive aspects of the vision rather than the obstacles and dangers; (iv) Express confidence in followers and their ability to carry out the strategy for accomplishing the vision, especially when the task is difficult or dangerous, or when members lack confidence in themselves; (v) Use dramatic, symbolic actions to emphasise key values and demonstrate leadership behaviour through dramatic, highly visible actions including risking personal loss, self-sacrifice or acting unconventionally; (vi) Lead by example by recognising that actions speak louder than words, through exemplary behaviour in day-to-day interactions with subordinates and by demonstrating consistency in daily behaviour.

3.3.2 Transactional leadership theory

Transactional leaders focus mainly on the physical and the security needs of subordinates. The relationship that evolves between the leader and the follower is based on bargaining, exchange or reward systems (Bass, 1985; Bass and Avolio, 1993). Transactional leaders guide or motivate their followers in the direction of established goals by clarifying role and task requirements (Robbins and Judge, 2009). Transactional leadership is at the heart of the management process aimed at keeping the organisation running smoothly and efficiently. Its emphasis is primarily on control through rule

compliance and maintaining stability within the organisation rather than by promoting change. By clarifying expectations and satisfying followers' external needs, followers build their confidence and morale and are more productive (Daft, 2005).

Bass (1990) identified three characteristics of transactional leadership as the following:

i. Contingent reward: contracts exchange of rewards for effort, promises rewards for good performance, recognises accomplishments;
ii. Management by exception (active): watches and searches for deviations from rules and standards, takes correct action; and
iii. Management by exception (passive): intervenes only if standards are not met.

3.3.3 Laissez-faire leadership theory

In this type of leadership style the leader abdicates his or her responsibilities and avoids making decisions. Laissez-faire is the most passive and therefore the least effective of the leadership behaviours. Leaders using this style are rarely viewed as effective. Management by exception – regardless of whether it is active or passive – is slightly better than laissez-faire, but it is still considered ineffective leadership. Leaders who practise management by exception style tend to be available only when there is a problem, which is often too late. Contingent reward leadership can be an effective style of leadership: however, leaders will not get their employees to go above and beyond the call of duty when practising this style of leadership.

Table 1: Leadership model factors as measured by MLQ 5X

Transformational factors	Transactional factors	Laissez-faire factors
Idealised influence attributes – Influence to change worker attributes **Idealised influence behaviour** – Influence to change worker behaviour **Inspirational motivation** – Inspiring others to perform at a higher level **Intellectual Stimulation** – Challenging the intellect to obtain new ideas and transformations **Individual consideration** – Acknowledging each individual for their contributions	**Contingent reward** – Rewards are only based on outcomes and the focus is on close management guidance of activities **Management–by- exception (active)** – Focusing on intervention only after a mistake has been made. Active implies close focus on every activity **Management–by – exception (passive)** - Intervention is only made when workers make a mistake on tasks they have defined	**Laissez-faire leadership** – Abdicates his/her responsibilities, avoids making decisions

Source: Bass and Avolio (2004)

4. RESEARCH METHOD

A quantitative research approach, synonymous with the traditional, experimental, or positivist method (Leedy and Ormrod, 2005), was adopted for the study. According to McQueen and Knussen (2002), a questionnaire survey is one of the most cost-effective ways to involve a large number of people in the process in order to achieve better results. The questionnaire survey was adopted to establish the leadership behaviours

(transformational, transactional and laissez-faire) exhibited by consulting firms in the NCI, and to establish whether the consulting firms in the NCI exhibit KM. The reasons for adopting the structured questionnaire are that it facilitates data analysis and the estimations of validity and reliability indices for the instrument.

The frequency with which an individual engages in leadership behaviours was determined by the Multifactor Leadership Questionnaire (MLQ), Form 5X developed by Bass and Avolio (2004). The MLQ has developed a track record for providing insights into leadership behaviours and this is the basis on which the researchers decided to adopt the test and use it to obtain the leadership information required for this study. The MLQ form 5X analyses leadership behaviours in three primary areas: transformational, transactional and laissez-faire behaviours. The MLQ 5X breaks these three primary categories into nine factors, five of which are considered transformational leadership behaviours, three transactional, and one laissez-faire.

The first part of the questionnaire focused on leadership behaviours which were measured by using a modified version of Bass and Avolio's (2004) multifactor leadership questionnaire (MLQ) Form 5X. The second part of the instrument utilised in this study was the knowledge management inventory. The inventory focused exclusively on the behavioural aspects of KM and the content was derived from Gamble and Blackwell (2001). The questionnaire was administered to senior management staff of consulting firms in the NCI.

4.1 Population and sampling

The population of this study was drawn primarily from the Architects' Registration Council of Nigeria (ARCON), the Quantity Surveyors' Registration Board of Nigeria (QSRBN), the Council of Registered Engineers of Nigeria (COREN), and databases of registered consulting firms in Abuja (FCT) and Kaduna State. A total of 498 consulting firms were obtained from the field survey.

4.2 Scope

The study focused on consulting firms in the NCI, namely architectural, quantity surveying, structural engineering, electrical and mechanical engineering practice firms. The data for the study were obtained from these construction consulting firms based in Kaduna and Abuja; Nigeria. The construction consulting firms were selected because previous research works identified them as knowledge–intensive service sectors. The study used the Multifactor Leadership Questionnaire (MLQ) form 5X created by Bass and Avolio (2004) and considered only transformational, transactional and laissez-faire leadership behaviours. The study also used sample questions created by Gamble and Blackwell (2001) for knowledge management inventory – a typology of personal KM categories.

The choice of Kaduna and Abuja for this study was premised on the fact that both cities have a fair concentration of consulting firms in the NCI. Former literature studies have shown that consulting firms are knowledge-oriented firms which suited the requirements of the study.

4.3 Sampling frame and sample size

To ensure that adequate representation of information was collected, the sample frame used in this study was drawn primarily from the registers of the State chapters of the various professional institutions (ARCON, QSRBN and COREN) that made up the target

population of the study areas. In order to determine a suitable size for the sample, the formula from Yamane (1986) was applied for calculating sample size i.e.

$$n = \frac{N}{1+N(e)^2} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

where

n = required sample size
N = the population size
e = level of precision (0.050).

The sample size for this study was calculated to be 222 using the above-stated formula. To this end a systematic sampling was used to select the consulting firms that were issued with structured questionnaires through hand delivery to their offices.

A total of 240 questionnaires were administered and 110 questionnaires were completed and returned. Moser and Kalton (1971) posit that the result of a survey could be considered as biased and of little significance if the return rate was lower than 30-40 per cent. Based on the foregoing assertion, the number of questionnaires completed and returned was therefore considered adequate for analysis, as 110 represents 45.9 per cent of the total questionnaires administered (240).

4.4 Data analysis

The data collected for this study was analysed using descriptive statistics which provide simple summaries about the sample and about the observations that have been made. This involved the use of frequencies, percentages and means for presenting description findings of the survey.

5. DATA PRESENTATION AND ANALYSIS

5.1 Response rate and demographics of respondents

5.2

Table 2: Response rate of consulting firms

Professional practice firms	Number of questionnaires	Number of responses	Percentage of response
Architectural firms	48	30	62.5
Quantity surveying firms	48	46	95.8
Structural engineering firms	48	16	33.3
Electrical engineering firms	48	11	22.9
Mechanical engineering firms	48	7	14.6
Total	240	110	

Table 2 shows that one hundred and ten (110) questionnaires were returned out of two hundred and forty (240) sent out, which represents a total response rate of 45.9 per cent. Quantity surveying practice firms had the highest response rate of (46), followed by architectural firms with a response rate of 30. Structural engineers had 16 responses, while electrical engineers and mechanical engineers had the least number of responses at 11 and 7 respectively.

Table 3: Qualification of respondents

Qualification	Frequency	Percentage
MSc	39	35

BSc	58	53
PGD	5	5
HND	8	7
Total	110	100

Table 3 provides information relating to the qualifications of the survey respondents in the consulting firms. As shown in this Table, 53 per cent of the respondents had earned a BSc, 35 per cent had an MSc, while only 7 per cent and 5 per cent of the respondents had an HND and PGD respectively. The percentage rate of the survey respondents with an MSc and BSc were far more than those with an HND and PGD. It can therefore be inferred that the survey respondents in the consulting firms were well educated. It is therefore evident that reliable information was provided by the survey respondents since all of them were well educated in their respective professions.

5.3 Establishing the leadership behaviours exhibited by consulting firms in the NCI

The leadership behaviours were determined by the Multifactor Leadership Questionnaire (MLQ), Form 5X which analyses leadership behaviours in three primary areas: transformational, transactional and laissez-faire behaviours. The MLQ 5X breaks these three primary categories down into nine factors, five of which are considered transformational leadership behaviours, three transactional, and one laissez-faire.

Table 4: Extent of leadership behaviours in consulting firms in the NCI

	Arch	QS	Struct. Engr Mean	Elect. Engr	Mech. Engr	Overall	
						Mean	Rank
Transformational							
Inspire workers and others to perform at a higher level	4.67	4.70	4.63	4.28	4.00	4.46	1
Acknowledging each individual/worker for their contributions	4.55	4.40	4.38	4.40	3.98	4.34	2
Challenge the intellect of workers to get new ideas and transformations	4.09	4.20	3.98	3.90	4.00	4.03	3
Influence to change workers' attributes	3.88	3.98	3.90	3.72	3.78	3.85	4
Influence to change workers' behaviour	3.82	3.97	3.80	3.84	3.67	3.82	5
Transactional							
Rewards are only based on outcomes and the focus is on close management guidance of activities	3.00	2.98	2.84	2.82	2.91	2.91	6
Watching and searching for deviations from rules and standards before taking corrective measures	2.80	2.92	2.87	2.72	2.77	2.82	7
Focusing on intervention only after a mistake has been made	2.67	2.87	2.63	2.39	2.59	2.63	8

Laissez-faire							
Abdicates responsibilities and avoids making decisions	2.27	2.22	2.56	2.27	2.29	2.32	9

The overall results show a similarity in the responses of all the professionals with the transformational leadership behaviour having the highest mean, followed by the transactional behaviour. The laissez-faire behaviour had the lowest mean of 2.32 and is not considered to be the practice of professionals in the industry.

5.4 Establishing whether the consulting firms in the NCI exhibit KM

Five key aspects of KM were identified as applicable to the industry, namely awareness and commitment, strategy, information technology (IT), organisation, and culture. Table 5 shows the extent to which each variable within these categories is present in consulting firms of the NCI.

Table 5: Extent to which KM practices exist in consulting firms in the NCI

PRACTICES	Mean
Awareness and commitment	**4.11**
Demonstrate commitment to KM with resources, action, guidelines and activities	4.59
Support, knowledge sharing and learning	4.14
Intellectual assets are recognised and some measure of value attached	4.09
Staff understands the concept of KM	4.08
Business strategy and knowledge is widely recognised as the basis of our competitive position	3.63
Strategy	**3.16**
There is a vision for how KM should integrate into the business	3.68
It is clear how KM initiatives support the business plan	3.68
There are defined responsibilities and a budget set for KM	2.92
KM principles are well established	2.85
There is a programme of initiatives within the business plan to improve KM	2.66
Information technology	**4.59**
Technology is a key enabler in ensuring the right information is available to the right people at the right time	4.76
IT allows effective communication across boundaries and even time zones	4.73
IT makes the search for information much easier	4.71
Staff uses the IT in place effectively as a normal working practice	4.56
Hardware and software are updated routinely without significant debate	4.18
Organisation	**3.67**
Staff are rotated to spread best practice ideas in order to assist with the dissemination of best practice	4.11
Formal networks exist to facilitate the dissemination of knowledge	4.07
Information is available to users in formats they can use and understand	3.88
Informal networks across the organisation are encouraged	3.49
A flexible, well-structured, up-to-date knowledge map exists to point staff in the direction of the knowledge they seek	2.82
Culture	**4.32**

Constantly seeking best practice and trying to re-use existing projects and knowledge whenever possible	4.79
Recording and sharing of knowledge is routine and second nature	4.40
Regular reviews or debriefings are used to see what has been learnt from projects	4.36
Everyone is willing to give advice or help on request to anyone else in the firm	4.14
Knowledge sharing is seen as a strength; mentoring and coaching are encouraged	3.93

As shown in Table 5, the mean scores for all aspects of the KM 'awareness and commitment' were all greater than 4.0 for all the consulting firms considered. In addition, the overall mean score for the awareness and commitment behaviour was greater than 4.11 which clearly indicates that all the consulting firms agree that awareness and commitment behaviours exist in their practice firms. The extent to which each component of the KM 'strategy' exists in consulting firms in the NCI showed varied mean scores as low as 2.66 ('programme of initiatives within the business plan') to the highest being 3.68. The varied means suggest that all the consulting firms agreed that the strategy behaviour existed in their firms, but were not sure of the existence of some of its components in their respective consulting firms. The mean scores for all aspects of the KM 'information technology' were higher than 4.0 in all behaviours (with overall average of 4.59), an indication that all the consulting firms agree that information technology behaviours exist in their firms. The components of the KM 'organisation' exist in consulting firms in the NCI. However, the mean score for 'existence of up-to-date knowledge map' was much lower than the other four components. The respondents agreed that the 'organisation' behaviour existed to a large extent in their firms, but were not sure of the existence of some of its components in their respective consulting firms. The mean scores for all aspects of the KM 'culture' were all greater than 3.0 with an overall mean of 4.32 which suggests that all the consulting firms agree that culture behaviours exist in their firms.

Discussion of results

As shown in the results, consulting firms in the NCI (architectural firms, quantity surveying firms, structural engineering firms, electrical engineering firms and mechanical engineering firms) all agree that transformational leadership behaviours are exhibited by the leadership in their respective consulting firms, but disagree with the exhibition of transactional and laissez-faire leadership behaviours by the leadership of their consulting firms. In addition, the results also showed that there are varying mean rates of agreement/disagreement that the three leadership behaviours (transformational, transactional and laissez-faire) are exhibited by the practice firms as evident from the analysis. Similarly, the results also show that KM (awareness and commitment, strategy, information technology (IT), organisation, and culture) exists in construction consulting firms in the NCI.

The exhibition of transformational leadership behaviours by the leadership of construction consulting firms in the NCI and the corresponding existence/presence of KM in the firms clearly conforms to Bryan's (2003) assertion that there is a clear relationship between transformational leadership and knowledge management in organisations. It also agrees with the suggestion of Kasimu **et al.** (2012) that leadership is a key factor for any KM initiative to succeed in the NCI. In addition, it shows that KM is present in the

consulting firms as a result of the transformational leadership behaviour being exhibited by the leadership of the consulting firms in the NCI.

Politis (2001) found that transformational leadership styles are related to dimensions of knowledge acquisition, while Crawford, Gould and Scott (2003) established that transformational leadership was related to innovation (knowledge management). In their findings, transformational leaders were significantly more innovative than transactional and laissez-faire leaders. The outcome of this study clearly indicates that transformational leadership is related to knowledge management in organisations (consulting firms) in the NCI, which further supports the positions of Politis (2001) as well as Crawford, Gould and Scott (2003) as outlined above.

6. Summary, conclusion, and recommendations

Summary of findings

Consulting firms in the NCI (architectural firms, quantity surveying firms, structural engineering firms, electrical engineering firms and mechanical engineering firms) exhibit transformational leadership behaviours much more than transactional and laissez-faire leadership behaviours. KM was found to be present in all the construction consulting firms in the NCI owing to the transformational leadership behaviours being exhibited by the leadership of the consulting firms. Information technology (IT) is the KM inventory most common in the consulting firms in the NCI, while strategy is the least common KM inventory in the consulting firms in the NCI.

Conclusion

The results of the study have shown that transformational leadership behaviours are present in the construction consulting firms in the NCI, which consequently is responsible for the presence of KM in the construction consulting firms. It can therefore be concluded that the construction firms in the NCI possess the right leadership behaviours that facilitate the adoption of KM.

Recommendations

The following recommendations are made based on the findings of this study:

i. The transformational leadership behaviours exhibited by the consulting firms have a strong relationship with higher productivity, higher morale and satisfaction, higher organisational effectiveness, lower absenteeism, and greater organisational adaptability by employees of the consulting firms. The foregoing outcomes are all embedded in the transformational leadership components of idealised influence attributes, idealised influence behaviour, inspirational motivation, intellectual stimulation and individual consideration. It is therefore pertinent that the consulting firms harness this strong positive relationship present in their firms between senior management and employees as a result of the characteristics of transformational leadership behaviours in order to reap increased productivity for their firms.

ii. Transformational leadership is associated with effective leadership and it is receptive to innovation. Innovation is a change management initiative which includes knowledge management. On the basis of this fact the consulting firms can formally adopt KM practices to improve their competitiveness in the market place and the quality of their service delivery in the NCI.

7. REFERENCES

Advanced Institute of Management Research. (2005). Leadership for innovation. AIM Research. Cambridge, Great Britain.

Proverbs, D.G., Holt, G.D. and Cheok, H.Y. (2000). Construction industry problems: the views of UK construction directors. In: Akintoye, A (Ed.), 16th Annual ARCOM Conference, 6-8 September 2000, Glasgow Caledonian University. Association of Researchers in Construction Management, Vol. 1, 73-81.

Alalshikh, M.A., & Male, S. (2009). The development of a value management approach for the Saudi public sector. In: Proceedings of the Construction and Building Research Conference of the Royal Institute of Chartered Surveyors COBRA 2009 (pp. 60-72). Cape Town: Royal Institute of Chartered Surveyors.

Al-Ghassani, A.M. (2003). Improving the structural design process: a knowledge management approach. PhD thesis, Loughborough University, London, UK.

Al-Yami, A., & Price, A. D. (2006). Assessing the feasibility of using value management to accelerate the implementation of sustainability. In: Proceedings of the 6th International Postgraduate Conference in the Built and Research Institute for the Built and Human Environment, Vol 1, pp. 765-774. Delft.

Anumba, C.J., Egbu, C. & Carrillo, P. (2007). Knowledge management in construction. Oxford: Blackwell Publishing.

Anago, I. (2006). The QS and roadmap to the future. In: Proceedings of the 22nd Biennial Conference of the Nigerian Institute of Quantity Surveyors, Calabar, Nigeria.

Bailey, C. & Clark, M. (2000). How do managers use knowledge about KM? **Journal of Knowledge Management** 4(3): 235-243

Baines, A. (1997). Exploiting organizational knowledge in the learning organization. **Work Study.** 46(6): 202-206.

Barth, S. (2003). A framework for personal knowledge management tools. KMWorld. 12(1): 20-21.

Bass, B.M. (1985). Leadership and performance beyond expectations. New York: Free Press.

Bass, B. M. & Avolio, B. J. (1994). Improving organisational performance through transformational leadership. California: Sage Publications.

Bass, B.M. & Avolio, B.J. (2004). Multifactor leadership questionnaire: manual and simpler Set (3rd edn.). Redwood City, CA: Mindgarden, Inc.

Bhatt, G.D. (2000). Information dynamics, learning and knowledge creation in organizations. **The Learning Organization**. 7: 89-99.

Birkenshaw, J. (2001). Why is knowledge management so difficult? **Business Strategy Review**. 2(1): 11 – 18.

Bishop, J., Bouchlaghem, D., Glass, J., & Matsumoto, I. (2008). Ensuring the effectiveness of a knowledge management initiative. **Journal of Knowledge Management**. 12(4): 16-29.

Bollinger, A. S., & Smith, R. D. (2001). Managing organizational knowledge as a strategic asset. **Journal of Knowledge Management**. 5(1): 8-18.

Bowen, P., Pearl, R., Cattell, K., Hunter, K., & Kelly, J. (2007). The role of value management in achieving best value in public sector service delivery in South Africa: a research agenda. Acta Structilia. 14(2): 58-75.

Brown, A.D. (1994). Transformational leadership in tackling technical change. **Journal of General Management**. 19(4): 1-12.

Bryant, S.E. (2003). The role of transformational and transactional leadership in creating, sharing and exploiting organizational knowledge. **Journal of Leadership and Organisational Studies**. 9: 32 – 44.

Burns, J.M. (1978). Leadership. New York: Harper and Row.

Burt, R.S. (2001). Structural holes versus network closure as social capital. In: Lin N, Cook K and Burt R (Eds.). Social capital: theory and research. pp. 31-56. New York: Aldine de Gruyter.

Burt, R.S (2003). The social origin of good ideas. Unpublished manuscript. Available online at http://gbswww.uchicago.edu/fac/ronald.burt/research/.

Cheah, Y.J., & Ting, S.K. (2005). Appraisal of value engineering in construction in Southeast Asia. International Journal of Project Management. 23: 151-158.

Clark, T., & Rollo, C. (2001). Corporate initiatives in knowledge management. Education + Training. 4(5): 206-241.

Crawford, C.B. (1998). Social cognition and leadership: implications for organizational innovation. Unpublished doctoral dissertation: Ann Arbor, MI.: Dissertation Abstracts International.

Crawford, C.B. & Strohkirch, C.S. (1997a). Cognitive differentiation and organizational influence tactics: findings and implications for leaders as agents of influence. Journal of Leadership Studies. 4(3): 152-161.

Crawford, C.B. & Strohkirch, C.S. (1997b). Influence methods and innovators: technocrats and champions. Journal of Leadership Studies. 4(2): 43-54.

Crawford, C.B. & Strohkirch, C.S. (2000). Organizational innovation: understanding of agents of technological influence. Electronic Journal of Communication. 10(1).

Crawford, C.B. & Strohkirch, C.S. (2002). Leadership education and management of knowledge organizations: an overview. **Journal of Leadership Education**. 1(2).

Crawford, C.B. Gould, L.V., & Scott, R.F. (2003). Transformational leader as champion and techie: implications for leadership educators. **Journal of Leadership Education**. Available online at: www.fhsu.edu/jole/index.html. 2 (1): 57-73

Crawford, C.B. (2005). Effects of transformational leadership and organizational position on knowledge management. *Journal of Knowledge Management* 9 (6): 6-16 available online at: https://doi.org/10.1108/13673270510629927

Daft, R.L. (2005). The leadership experience (3rd ed.). Canada: Thomson South Western.

Dantata, S. (2008). General overview of the Nigerian construction industry**.** Unpublished M.Eng thesis submitted to the Department of Civil & Environmental Engineering in partial fulfilment of the requirements for the degree of Master of Engineering in Civil & Environmental Engineering. Massachusetts Institute of Technology, Cambridge,Massachusetts

Davenport, T. H., & Prusak, L. (1998). Working knowledge: managing what your organization knows**.** Boston, MA.: Harvard Business School Press

DeDreu, C. & West, M. (2001). Minority dissent and team innovation: the importance of participation in decision-making. Journal of Applied Psychology. 86: 1191-1201.

Dougherty D (1992). Interpretive barriers to successful product innovation in large firms. Organisation Science. 3: 179-202.

Egbu, C. & Robinson, H. (2005). Construction as knowledge based industry. In: Anumba, C.J., Egbu, C. and Carrillo, P. (Eds.). Knowledge Management in Construction. Oxford: Blackwell Publishing.

Egan, J. (1998). Rethinking construction. London: DETR.

Federal Republic of Nigeria. National Bureau of Statistics. (2006). Population Census. Available online at: www.nigerianstat.gov.ng.

Fullan, M. (2001). Leading in a culture of change. San Francisco, CA: Jossey-Bass.

Fruchter, R. & Demian, P. (2005). CoMem: designing an interactive experience for reuse of rich contextual information from a corporate memory. In: Parmee I, Smith I (Eds.). Human computer interaction in engineering context AIEDAM International special issue. 16: 127-47.

Galagan, P. (1997). Smart companies (knowledge management). Training and Development. 51(12): 20-25.

Gamble, P.J., & Blackwell, J. (2001). Knowledge management: a state of the art guide. London: Kogan Page. Goffee, R and Jones, G. (1996). What holds the modern company together? Harvard Business Review. 74(6): 133-48.

Handy, C. (1999). The search for meaning. In: Hesselbein, F. and P. M. Cohen (Eds.). Leader to leader: enduring insights on leadership from the Drucker Foundation's award-winning journal. New York: Drucker Foundation Leader Books.

Hitt, W.D. (1995). The learning organization: some reflections on organizational renewal. Leadership and Organization Development Journal. 16(8): 17-25.

House, R.J. (1971). A path-goal theory of leadership. Administrative Science Quarterly. 16: 321-38.

House, R.J., Javidan, M. Hanges, P. & Dorfman, P. (2002). Understanding cultures and implicit leadership theories across the globe: an introduction to Project Globe. **Journal of World Business** (Spring): 3-10.

Howell, J.M. & Hall-Merenda, K.E. (1999). The ties that bind: the impact of leader–member exchange, transformational and transactional leadership and distance on predicting follower performance. **Journal of Applied Psychology.** 84: 680–694.

Howell, J.M., & Higgins, C.A. (1990a). Champions of technological innovation. Administrative Science Quarterly. 35: 317-341.

Howell, J.M., & Higgins, C.A. (1990b). Champions of change: identifying, understanding, and supporting champions of technological innovation. Organizational Dynamics. 19: 40 - 55.

Howell, J.M. & Higgins, C.A. (1990c). Champions of change. **Business Quarterly.** 54 (4): 31-36.

Johnson, J. R. (2002). Leading the learning organization: portrait of four leaders. Leadership and Organization Development Journal. 23(5): 241-249.

Jung, D. (2001). Transformational and transactional leadership and their effects on creativity in groups. Creativity Research Journal. 13: 185-195.

Jung, D & Avolio B (2000). Opening the black box: an experimental investigation of the mediating effects of trust and value congruence on transformational and transactional leadership. **Journal of Organizational Behaviour**. 21: 949-964.

Kasimu, M., Roslan Bin, A. & Fadhlin B.A. (2012). KM models in civil engineering construction firms in Nigeria. Interdisciplinary Journal of Contemporary Research in Business. 4. No. (6). Available online at: Ijcrb.webs.com.

Kim, J. (2006). Measuring the impacts of KM. In: Proceedings of the 72nd IFLA General Conference and Council, Seoul Korea.

Klenke, K. (1994). Information technologies as drivers of emergent organizational forms: a leadership perspective. In: Baskerville, R., Smithson, S., Ngwenyama, O, and DeGross, J.I. (Eds.). Transforming organizations with information technology. Amsterdam, North Holland: Elsevier Science B. V.

Kolo, B.A. & Ibrahim, A.D. (2010). Value management: how adoptable is it in the Nigerian construction industry? In: Laryea, S., Leiringer, R. and Hughes, W. (Eds.).

In: Proceedings of the West Africa Built Environment Research (WABER) Conference, 27-28 July, Accra, Ghana, pp. 653-663.

Kridan, A.B., & Goulding, J.S. (2006). Assessing the role of organisational commitment in KM implementation: an application of the capability maturity model to the Libyan banking sector. The Research Institute for the Built and Human Environment, University of Salford, Salford, UK.

Lang, J. C. (2001). Managerial concerns in knowledge management. Journal of Knowledge Management. 5(1): 43-57.

Latham, M. (1994). Constructing the team. London: HMSO.

Laudon, K.C. & Laudon, J.P. (2007). Management information systems: managing the digital firm (10th edn.). Upper Saddle River, New Jersey: Pearson Prentice-Hall, Pearson Education, Inc.

Mahoney, R. (2000). Leadership and learning organizations. The Learning Organization. 7(5): 241-243.

Marshall, N. & Sapsed, J. (2000). The limits of disembodied knowledge: challenges of inter-project learning in production of complex products and systems. In: Proceedings of Knowledge Management; Concepts and Controversies Conference, University of Warwick, Coventry.

McGregor, D. (1987). The human side of enterprise. Harmondsworth: Penguin.

McQueen, R.A. and Knussen, C. (2002). Research methods for social science: a practical introduction. Harlow: Prentice Hall.

Moser, C.A. & Kalton, G. (1971). Survey methods in social investigation. London: Heinemann Educational.

Mullins, L.J. (2007). Management and organisational behaviour (8th edn.). Harlow: Financial Times Prentice Hall.

Nigerian Institute of Quantity Surveyors. (NIQS). (2012). Mandatory Leadership Development Programme (MLDP) Workshop: Corporate Transformation and Leadership Challenges: The Construction Sector within the Federal Government Transformation Agenda, Abuja, Nigeria.

Nonaka, I. & Konno, N. (1998). The concept of `Ba': building a foundation for knowledge creation. California Management Review. 40: 40-54.

Nonaka, I., & Takeuchi, H. (1995). The knowledge creating company: how Japanese companies create the dynamics of innovation. Oxford University Press: New York.

Odediran, S.J., Adeyinka, B.F., Opatunji, O.A., & Morakinyo, K.O. (2012). Business structure of indigenous firms in the Nigeria construction industry. International Journal of Business Research and Management (IJBRM). 3(5): 255-264.

Odusami, K.T., Iyagba, R.R., & Omirin, M.M. (2003). The relationship between project leadership, team composition and construction project performance in Nigeria. **International Journal of Project Management**. 21(7):519-27.

Ofori, G. (2000) Challenges of construction industries in developing countries: lessons from various countries. Conference Papers, 2nd International conference on construction in developing countries: Challenges facing the construction industry in developing countries, 15-17 November 2000, Gabarone, 1-13.

Omole, A. (2000). Surveying input to engineering projects: need for professionalism. **The Quantity Surveyor**. (30): 10-18.

Politis, J.D. (2001). The relationship of various leadership styles to knowledge management. **Leadership & Organization Development Journal**. 22(8): 354-364.

Quintas, P. (2002). Implications of the division of knowledge for innovation in networks. In: De la Mothe, J. and Link, A.N. (Eds.). Networks, alliances and partnerships in the innovation process, Boston: Kluwer Academic Press pp. 135 – 62.

Quintas, P. (2005). The nature and dimensions of knowledge management. In: Anumba, C.J., Egbu, C. and Carrillo, P. (Eds.). Knowledge management in construction. Oxford: Blackwell.

Ramberg, S. (2000). Six sigma: fad or fundamental. Quality Digest. Available online at: http://www.qualitydigest.com.

Republic of South Africa. Department of Trade and Industry (DTI). (1998). Competitiveness White Paper: Building the Knowledge Driven Economy. Available online at http://www.dti.gov.uk/comp/competitive/

Republic of South Africa. Department of Trade and Industry (DTI). (2004). Inspired leadership: insights into people who inspire exceptional performance. DTI

Rezgui, Y. (2001). Review of information and knowledge management practices – state of the art in the construction industry. **The Knowledge Engineering Review Journal**. 16(2): 241-254.

Robbins, S.P. & Judge, T.A. (2009). Organizational behaviour. (Pearson International 13th edn.). Upper Saddle River, United States: Prentice Hall.

Robinson, H.S., Carrillo, M.P., Anumba, C.J. & Al-Ghassani, A.M. (2001). Linking knowledge management strategy to business performance in construction organisations, In: Akintoye, A. (Ed.) Proceedings of the 17th Annual Association of Researchers in Construction Management (ARCOM) Conference, 5-7th September, University of Salford.

Scarbrough, H., Swan, J., & Preston, J. (1999). Issues in people management: knowledge management: a literature review. Institute of Personnel and Development, Wiltshire: The Cromwell Press.

Scharmer, C. O. (2001). Self-transcending knowledge: sensing and organizing around emerging opportunities. Journal of Knowledge Management. 5(2): 137-150.

Schien, E. (1992). Organisational culture and leadership. San Francisco: Jossey Bass.

Seng, C.V., Zannes, E., & Pace, R. W. (2002). The contributions of knowledge management to workplace learning. Journal of Workplace Learning. 14(4): 138-147.

Sethi, R., Smith, D.C., & Park, W.C. (2001). Cross-functional product development teams, creativity, and the innovativeness of new consumer products. Journal of Marketing Research. 38: 73–85.

Sheehan, T, T. Poole, D., Lyttle, I & Egbu, C.O., (2005). Strategies and business case for knowledge management. In: Anumba, C.J., Egbu, C. and Carrillo, P. (Eds.). Knowledge Management in Construction. Oxford: Blackwell.

Shin, S.J. & Zhou, J. (2003). Transformational leadership, conservation and creativity: evidence from Korea. **Academy of Management Journal**. 46: 703-714.

Siemieniuch, C.E. & Sinclair, M.A. (1999). Organizational aspects of knowledge lifecycle management in manufacturing. International Journal of Human-Computer Studies. 51(3): 517-547.

State Justice Institute, USA (SJI) (1999). A judge's deskbook on the basic philosophies and methods of science: model curriculum. Reston, USA: State Justice Institute.

Sodiya, A., Onashoga, S., Dansu, B., & Adeleye, B. (2006). An assessment of knowledge management capabilities of Nigerian banking institutions. In: I. C. Eromosele, T. and T. O. S. Popoola (Eds). Proceeding of 2nd International Conference on Science

and National Development, pp 132-137, ISBN: 978-2783-85-4, published by College of Natural Sciences, University of Agriculture, Abeokuta, Nigeria.

Sosik, J.J. (1997). Effects of transformational leadership and anonymity on idea generation in computer-mediated groups. Group and Organization Management. 22: 460-487.

Stogdill, R. (1974). Handbook of leadership: a survey of theory and research. New York, NY: Free Press.

Stonehouse, G. H., & Pemberton, J. D. (1999). Learning and knowledge management in the intelligent organization. Participation & Empowerment: An International Journal. 7(5): 131-144.

Suresh, S. (2008). The role of leadership for the successful deployment of KM initiatives in the UK construction industry. School of Engineering and the Built Environment, University of Wolverhampton City Campus, Wolverhampton.

Szulanski, G. (1996). Exploring internal stickiness: impediments to the transfer of best practice within the firm. Strategic Management Journal. 17: 27-43.

Tannenbaum, R. & Schmidt, W.H. (1973). How to choose a leadership pattern. Harvard Business Review pp162-175, 178-180.

Teece, D. (1998). Research directions for knowledge management, California Management Review. 40(3): 289-92.

TFPL Ltd (1999). A report on skills for knowledge management – building a knowledge economy. London: TFPL.

Tichy, N.M., & Devanna, M.A. (1986). The transformational leader. New York: John Wiley and Sons.

Tiwana, A. (2000). The knowledge management toolkit: practical techniques for building a knowledge management system. New Jersey: Prentice-Hall.

Toor, S.R. (2009). Authentic leadership development and influence in the construction industry of Singapore. PhD thesis. National University of Singapore, Singapore.

Viitala, R. (2004). Towards knowledge leadership. **The Leadership and Organisation Development Journal**. 25(6): 528-544.

Vroom, V.H. & Jago, A.G. (1988). The new leadership: managing participation in organisations. Englewood Cliffs, NJ: Prentice-Hall.

Waldersee, R. (1997). Becoming a learning organization: the transformation of the workforce. Journal of Management Development. 16(4): 262-273.

Wang H., Law K.S, Hackett R, Wang D.X. & Chen, Z.X. (2005). Leader-member exchange as a mediator of the relationship between transformational leadership and followers' performance and organizational citizenship behaviour. Academy of Management Journal. 48**:** 420-432.

Windrum, P., Flanagan, K., & Tomlinson, M. (1997). Recent patterns of services innovation in the UK. Report for TSER project 'SI4S'. Policy Research in Engineering, Science and Technology. Manchester.

Yamane, T. (1986). Statistics: an introductory analysis. 2nd edn.). New York: Harper and Row.

Yukl, G. (2006). Leadership in organisations (6th edn.). Upper Saddle River, NJ: Pearson Education Prentice-Hall.