

Assessing Client - Contractor Collaboration Effect on Construction Project Performance in Kano

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ABSTRACT

All over the world the situation in construction projects seems to be very similar. Many projects have a cost and time overflow because the collaboration between construction project stakeholders is poor. There appears to be no clear understanding of collaboration features, therefore making it difficult to effectively interact and achieve common project goals within the bounds of cost, quality, and time. The purpose of the paper is to identify and give quantitative assessment of the effects such features have on performance of construction project. Nine (9) features of collaboration were identified from detail review of past literature and were used in the questionnaires in order to ascertain the extent of their effect on performance of projects within the construction industry. The Three (3) traditional measures (cost, time and quality) of construction performance were used for the measurement of project performance. Data on the questionnaires were gathered from 39 respondents (project managers). The study respondents were provided five options in the form of a Likert Scale ranging from 1 (very low extent), 2 (of low extent), 3 (of moderate), 4 (high extent) and (of extremely high extent). Analysis of the obtained data indicated that Six key features of collaboration; Mutual trust, common goal, information sharing, effective communication, commitment and openness has very high extent effect on the overall performance of construction projects, considering their mean values are within the range of (3.5 – 4.49).

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KEYWORDS: Collaboration, Construction project performance and collaborative features

1. INTRODUCTION

The contribution of construction industry in the economic growth of any country cannot be overemphasized and the major problem facing it for years is the criticism it has received over collaboration consensus among stakeholders. Construction industry is suffering collaborations issues all over the world (Mirawati et al., 2015). Confrontational working environment created in the construction industry because of poor collaboration among stakeholders often causes delay (Chan et al., 2008). Poor collaboration among stakeholders particularly between client and contractor always cause cost and time overrun in the construction projects (Spang and Riemann, 2014).

With construction being a prime economic activity, it is crucial that construction projects become successful. However, performance in the construction

industry has been poor due to poor collaboration amongst project owners and executors (Isikdag and Underwood, 2010). Poor collaboration, limited trust and misalignment of objectives, often induces confrontational working relationship between construction client and contractor, and eventually results into adverse project performance (Latham, 1994; Brensen and Marshal, 2000; Chan et al, 2004). Similarly, poor collaboration between client and contractor has given rise to various negative outcomes, such as project delays, mis-formation, poor resource distribution, profit loss and even reworks that are having a great negative impact on construction as a whole (McDonald, 2014).

Morrell (2015) insisted that collaboration between project owner and contractors will resolve performance issues and lead to a higher level of

customer satisfaction. However, despite numerous benefits of collaboration as outlined by previous authors, the level of involvement in collaboration by project actors especially client and contractor who play important roles in execution of the project are still low (Ahmed, 2019). It is along this line that many authors insisted that the construction industry needs to improve collaboration to remain competitive and meet the expectations of increasingly demanding clients (Cao et al. 2015; Morrell 2015).

Meanwhile, there are several responses to these calls for continuous improvement in efficiency and productivity of the Construction Industry from different perspectives. See Ali Shaikh et al., (2020) and Abdullrahman et al., (2013). These studies focus on the importance and roles of collaboration, with less attention paid to collaborative features that could serve as guide on how project owners and contractors involved in construction can effectively interrelate to achieve project goal. In the absence of clarity about these features of collaboration that may impact the interactions, it is not possible to optimize the performance of construction projects. This leaves the stakeholders with insufficient knowledge and therefore making it difficult for the stakeholders to effectively interact and achieve common project goals within the bounds of cost, quality and time. Considering this knowledge gap, this study intends to

identify the collaboration features and give a quantitative analysis of their effects on the three traditional measures of construction project performance (time, cost and quality). This will help the project stakeholders to prioritize their efforts on features that they can expect to have the most significant effect on construction project outcomes

2. IDENTIFICATION OF COLLABORATIVE FEATURES IN CONSTRUCTION

From the literature, this study identified a total of sixteen (16) features of collaboration through in-depth review of articles relating to collaboration. Firstly, the related articles were identified through searching for keywords, such as features of teamwork/collaborative working in titles and abstracts of studies. Secondly, all related articles were qualitatively evaluated in order to determine a representative sample for the study as done by similar studies such as Kozuch and Sienkiewicz-Małyjurek (2016) and Wu et al. (2008). Based on the literature reviewed, a total of sixteen (16) factors were identified and nine (9) were selected as key features of collaboration among project parties in construction. The selection is based on their appearance frequencies in the reviewed articles. Factors that appear in two or more articles are considered key features of collaboration in construction industry as presented in Table 1 below

Table 1: Key Features of Collaboration in Construction Reviewed from Literature

Authors	Common goal	Gain-pain sharing,	Mutual Trust	Openness	no-blame culture	Commitment	Effective communication	Information sharing	, flexibility
Faris et al. (2019)	√	√	√						
Suprpto et al. (2016)			√	√	√	√			
Rahman et al. (2012)							√		
Mensah (2016)							√		
Meng (2012)	√	√	√		√		√		
Hosseini et al. (2016)	√		√						
Dietrich et al. (2010)			√						
Ibrahim et al. (2011)			√						√
Adetola et al. (2011)			√						√
Hasanzadeh et al. (2014)						√			

Shen, (2017)			√	√		√	√		
Msomba (2018)					√		√		
McGuire (2006)									
Thomson and Perry (2006)									
Emerson et al. (2012)									
Ansell and Gash (2007)									
Suprapto et al. (2015)					√	√			
Shelbourn et al. (2007)	√		√				√		
Cheung et al. (2003)			√			√		√	
Chan et al. (2004)			√			√		√	
Total mention	4	2	11	2	4	6	6	2	

3. RESEARCH METHODS

The populations selected for this study are the project managers who were involved in Kano state projects from the year 2015 to date. Population size for the project managers was derived from Kano State Due Process Bureau. The justification for project managers is because they are professionals who organizes, plans and executes projects. The Project manager leads the entire project team. He defines project goals and objectives, communicates with all the direct and indirect stakeholders involved and sees the project through to completion. Throughout the entire stages of project, he is charged with the responsibility of coordinating and managing project resources (personnel and materials), communicating with stakeholders, and monitoring the progress of the project. Kano is located in the North-western part of Nigeria. Being one of the commercial nerve centres of the country, there are numerous construction projects in Kano executed in recent time to meet the housing, economic, social and infrastructure requirements of the emerging megacity. The choice of Kano benefits the study because it permits the sampling of large population of project managers.

The Sampling technique used for the study is simple random sampling. Sample size for the respondents was obtained through the use of Yamane's formula. Total of 59 questionnaires were distributed to the entire respondents. 39 questionnaires were successfully retrieved representing (66% of the total), which were valid and used in the analysis. The data obtained in the returned questionnaires was analyzed using the Statistical Package for Social Sciences (SPSS) software.

Quantitative research approach was systematically employed for this study were semi structured

questionnaires were designed and administered to the respondents (project managers). The questions were designed to retrieve information on the effects of collaborative features on construction project performance. The questionnaire is divided into two sections (A and B). Section A comprises total of five (5) questions aimed at providing information about the respondents profile whereas section B had nine (9) questions which focused on the subject matter of the study i.e. the effects of collaborative features between client and contractor on performance of the Construction Projects. For each question in section B the respondents had been provided with five options in the form of a Likert Scale ranging from 1 (very low extent), 2 (of low extent), 3 (of moderate), 4 (high extent) and (of extremely high extent).

Measure of central tendency was employed in the analysis of data relating to Section B of the questionnaire, where cumulative mean score was computed and compared to a standard decision mean based on the 5-point likert scale. A cumulative mean score of 3.5 represents the standard decision mean which indicates positive response or high extent on the question, if otherwise; it indicates a negative response, moderate or low extent on the question. Hence, the following ratings are interpreted as: 0 - 1.49 indicates very low extent, 1.5 - 2.49 indicates low extent, 2.5 - 3.49 indicates moderate extent, 3.5 - 4.49 indicates high extent, 4.5 and above indicates very high extent.

4. RESULTS

Description of Respondents' Profession

The table (1) below present the distribution of the respondents based on the nature of their profession. Architects formed the large group of the respondents with 21 representing (54%) out of the total in the entire survey then followed by structural engineers 9 (23%), Quantity surveyors 7 (18%). It can also be seen that 2 representing (5%) of the respondents were Electrical Engineers.

Table 2: Nature of Respondents' Work

Profession	Frequency	Percentage
Architect	21	54
Quantity Surveying	7	18
Structural Engineer	9	23
Electrical Engineer	2	5
Total	39	100

Table 3 (a): Effects of Collaborative Features on Cost Performance of projects

S/NO	VARIABLES	MEAN SCORE	RANK
1	Common goal	3.99	2
2	Gain pain sharing	3.28	8
3	Mutual trust	4.20	1
4	Openness	3.31	7
5	No blame culture	2.63	9
6	Commitment	3.93	3
7	Effective Communication	3.60	5
8	Information sharing	3.89	4
9	Flexibility	3.45	6

Table 3 (b): Effects of Collaborative Features on Time Performance of Projects

S/NO	VARIABLES	MEAN SCORE	RANK
1	Common goal	3.87	4
2	Gain pain sharing	3.42	8
3	Mutual trust	3.98	2
4	Openness	3.75	6
5	No blame culture	3.07	9
6	Commitment	3.90	3
7	Effective Communication	4.12	1
8	Information sharing	3.76	5
9	Flexibility	3.47	7

Table 3 (c) Effects of Collaborative Features on Quality performance of projects

S/NO	VARIABLES	MEAN SCORE	RANK
1	Common goal	3.55	6
2	Gain pain sharing	3.57	5
3	Mutual trust	3.75	1
4	Openness	3.58	4
5	No blame culture	3.40	7
6	Commitment	3.36	8
7	Effective Communication	3.63	3
8	Information sharing	3.73	2
9	Flexibility	2.80	9

Table 4: Overall effect of features on performance of projects

s/ no	Variables	Mean scores			Overall performance	
		Cost	time	Quality	average	Overall Ranking
1	Common goal	3.99	3.87	3.55	3.80	2
2	Gain pain sharing	3.28	3.42	3.57	3.42	7
3	Mutual trust	4.20	3.98	3.75	3.97	1
4	Openness	3.31	3.75	3.58	3.55	6
5	No blame culture	2.63	3.07	3.40	3.03	9
6	Commitment	3.93	3.90	3.36	3.73	5
7	Effective Communication	3.60	4.12	3.63	3.78	4
8	Information sharing	3.89	3.76	3.73	3.79	3
9	Flexibility	3.45	3.47	2.80	3.24	8

Discussion of Results

The ranking was done based on the mean values of the responses in order to ascertain the most significant features from the respondent view point. From the analysis under cost performance, Mutual trust (4.20), common goal (3.99), Commitment (3.93), information sharing (3.89) and effective communication (3.60) has the highest score and considered as having high extent effect cost performance of construction projects (since they are between 3.5 and 4.49). These are considered as

having high extent effect and are ranked as 1st, 2nd, 3rd, 4th, and 5th respectively.

Effective communication, mutual trust, commitment, common goal, information sharing and Openness with mean values as (4.2, 3.98, 3.90, 3.87, 3.76 and 3.75) respectively and falls within the range of (3.5 – 4.49) are considered having very high extent effect on time performance of construction projects. Also as seen in table 3(c) the first five features with highest mean scores are; Mutual trust (3.75), Information sharing (3.73), Effective communication (3.63), Openness (3.58) and gain pain sharing (3.57). These features are ranked 1st, 2nd, 3rd, 4th, and 5th respectively with very high extent effect on quality performance of projects.

Table 4 shows the average overall effects on performance (cost, time and quality). However, the table reveals that Mutual trust, common goal, information sharing, effective communication, commitment and openness has very high extent effect on the overall performance of construction projects, considering their mean values are within the range of (3.5 – 4.49). While gain pain sharing, flexibility and no blame culture have low extent effect on the overall performance (less than 3.50)

5. CONCLUSION

From the findings made, it can be concluded that the benefits of these features in construction projects is indispensable in the construction industry. though as revealed from the findings Six key features of collaboration; Mutual trust, common goal, information sharing, effective communication, commitment and openness has very high extent effect on the overall performance of construction projects, considering their mean values are within the range of (3.5 – 4.49). However, more effort can be concentrated on these features in achieving greater performance within the construction industry.

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