

APPRAISING RELATIONSHIP MANAGEMENT IN CONSTRUCTION PROJECT TEAMS

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ABSTRACT

Relationship management (RM) in the construction industry has not only made collaboration more successful, but has also improved project performance. Researchers have identified the importance of RM and how to effectively manage relationships and the new construct of RM in the client and contractor groups is well documented. However, the nature of non-contractual RM is still unclear. Therefore, the research aimed to appraise RM in construction project teams with a view to improving project team effectiveness. The research methodology used is the quantitative approach a list of 17 practices of RM were used in a questionnaire to gather information from 174 construction practitioners (Architects, Builders, Engineers and Quantity Surveyors). Regression analysis was carried out and it showed a strong, positive correlation between RM practices and team effectiveness with RM determinant sufficiently predicting team effectiveness. The findings show a low level of application of RM practices although considered important by the practitioners. Hence, RM is slowly applied and has a positive relationship with team effectiveness.

Keywords: Relationship Management, Project Team, Construction Practitioners, Regression Analysis.

INTRODUCTION

Relationship Management has been proven to have a direct effect on project performance. Meng (2012) established that deterioration of supply chain relationships is a major reason for occurrence of poor performance. Also, one of the main goals of relationship management is to maximise the lifetime value of a customer through the maintenance of customer satisfaction which is by achieving positive project performance (Robyn & Keith, 2007). Researchers in construction relationship management have adopted the concept of relationship quality from marketing which is the dynamics of long-term quality formation in on-going customer relationships (Babaeian, Yiu, & Wilkinson, 2013). However, in construction literature, it is regarded as a measuring and evaluation tool for observation of relationship status, beneficial for the assessment of crucial relationships (Babaeian Jelodar & Yiu, 2012). Furthermore, it is defined within the attributes of trust, commitment, teamwork and performance satisfaction. It has been described as a necessary tool in the industry to make the shift to relational procurement strategies smoother and feasible. Babaeian, Yiu, and Wilkinson (2016) studied how relationship quality (RQ) is perceived and judged amongst construction practitioners and concluded that performance satisfaction is the most decisive attribute. Despite this conclusion, the perception of RQ in the construction industry is not unanimous.

Researchers have captured relationship management requirements for international engineering, procurement and construction projects with the most important factors including problem solving and delivery reliability (Pal, Wang, & Liang, 2017).. Smyth and Edkins (2007) emphasized the need for project managers to use relationship management as a means to evaluate project management relationships. However, RM practices discussed were in relation to the contractual relationships that exist in the construction industry. Additionally, it has been well established in research that the success of construction projects has less to do with the procurement route in use and more to do with the way projects teams are managed (Dada, 2014; Federica, Ariovaldo, Andrea, Flavio, & Alberto, 2019). This has necessitated a shift from dependence on contractual provisions to manage relationships to relational ones and has equally made it imperative for research to also focus on better ways to manage non-contractual relationships. However, research have been focused with the contractual relationships involved in the procurement process and the nature of non-contractual relationship management in project teams is not known (Benítez-Ávila et al., 2018; Ke, 2019).

Hence effort to improve performances in the construction industry based on relationships have to be made. The research was aimed at appraising relationship management in Construction Project teams with a view to improving project team effectiveness. In order to achieve the aim, the following objectives were formulated;



1. To identify the practices of relationship management
2. To assess the extent to which relationships are managed in construction project teams
3. To determine the extent to which construction project teams are effective
4. To establish the relationship between the practices of RM and team effectiveness.

LITERATURE REVIEW

Relationship management (RM) is originally a concept from marketing and organisational management and it deals mainly with customer retention. Relationship management involves analysis, investment in relationships and a clear view of the wider value that can be gained from each relationship and which extends beyond the straightforward features of the product that is exchanged (Gummesson, 2011). RM aims to create a partnership between an organisation and its patrons, instead of viewing the relationship as merely transactional. have been carried out based on different procurement strategies used to find effective ways to manage relationships. Relational versus contractual governance issues (Benítez-Ávila, Hartmann, Dewulf, & Henseler, 2018; Ling, Ong, Ke, Wang, & Zou, 2014) which covers issues of trust and reliance on relationship development.

Furthermore, different political climates have also been shown to affect relationship management in projects (Chan, Le, Hu, & Shan, 2015). Jelodar, Yiu, and Wilkinson (2016) researched on how relationships should be maintained and developed in construction procurement and outlined several strategies that could be used to enhance RQ. These strategies and actions discussed in relationship management literature include; procurement strategy, which include the adoption of relational contracting, flexibility in contracts and vigorous selection of contractors (Mohan, Florence, Motiar, & Siew, 2005), Individual and attitude modification i.e., flexible attitude, integrity and respect (Xiao-Hua & Florence, 2005), Clarity and joint goal formation (Xianhai, Ming, & Martyn, 2011; Zou et al., 2014) and education, Training and culture synchronisation (Davis, 2009).

Relationship Management in Construction

The construction industry has complex dynamic environments involving rapid change and unanticipated decision situations (Sivadasan, 2002), therefore continuous innovations are required for the industry to compete. The rise of joint venture and partnering contracts, as well as supply chain collaboration, has increased the focus on collaborative elements of project team management (Azmy, 2012). Although many construction companies still overlook the importance of maintaining stakeholder relationships effectively. It is important to effectively manage relations between project parties as time delays, cost overruns and quality defects can be the result of relationship deterioration (Ke, 2019). By improving some aspects of the relationship, the chances and implications of poor performance can be reduced.

Team Effectiveness

Team effectiveness is often explained on the basis of input-process-output models (IPO). These models describe the impact of input (e.g., organisational culture, team composition, structure of communication, task design) and the mediating process (e.g., communication, coordination, respect, conflict leadership) on team output (e.g., team performance, job satisfaction, well-being, cost effectiveness) (Zoogah, Noe, & Shenkar, 2015). (Salas, Shuffler, Thayer, Bedwell, & Lazzara, 2015) outline six considerations for an effective team as; cooperation, conflict, coordination, communication, coaching, cognition and three influencing conditions, which serve as factors impacting the aforementioned core processes and emergent states as; composition, culture, and context

.Summary of Effective Team Attributes

s/n	Six Effective Team Attributes	Description
1	Taskwork	Performance of specific tasks that team members need to complete in order to achieve team goals
2	Cognition	Adequate knowledge of mission and objectives
3	Cooperation	Motivational drivers of teamwork
4	Coaching	Enactment of leadership behaviours to establish goals and set direction
5	Conflict	Resolution of conflict within the team
6	Communication	Effective and open communication channels



METHODOLOGY

The approach of this research was descriptive as quantitative research was adopted. The population of this study include construction practitioners; Architects, Engineers, Builders and Quantity Surveyors. To ensure adequate representation of the whole population, the sample frame used was drawn from the registration bodies of the various practitioners; Quantity Surveyors (QSRBN), Architects (ARCON), Builders (CORBON) and Engineers (COREN) and a sample frame of 53002 was reached. The sample size was computed using the formula established by Yamane (1967); and shown below as equation 1.

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

Where: **n** = required sample size, **N** = sample frame and **e** = level of precision.

Kothari & Garg (2014) corroborated that precision level of 15% be used for large populations. Hence, the precision levels of 15% was adopted for the four population groups (Architects, Engineers, Quantity Surveyors and Builders). The sampling frame and sample size for each of the professionals is shown below.

Sample Size Computation

Professionals	Sampling Frame	Sample Size
Architects	3651	43
Builders	3245	43
Engineers	42835	44
Quantity Surveyors	3271	44
Total	53002	174

The questionnaire was divided into three sections; Section A contained the general information about the respondents. The section B was designed to assess the extent to which project teams are managed. A total number of 17 practices of relationship management were listed and the respondents were asked to tick the most appropriate answers. For each of the option, the respondents were provided with five answers in form of a Likert scale (1 to 5), these are; strongly dis agree, dis agree, Neutral, Agree and Strongly Agree. The options indicate the extent to which each determinant was applied in the project the participants were part of. The last part of the questionnaire was designed to assess the extent to which project teams are effective. A total of six attributes of an effective team was listed and respondents were asked to rate on a scale (1 to 5) based on which of the attributes best describes their team. The secondary sources of data were drawn from journals and textbooks which were accordingly cited and referenced. And all data were analyzed using descriptive statistical analysis.

RESULTS

The tables below highlight the background information about the respondents. It gives information about the disciplines of the respondents, educational qualification and the client type.

Table 1: Disciplines of Respondents

	Number of questionnaires distributed	Number of Responses	Overall Percent
Architecture	44	27	15.5
Engineering	44	21	12.1
Quantity Surveying	43	29	16.7
Building	43	23	13.2
Total	174	118	57.5

Source: Field survey

Table 1 above shows that 118 questionnaires were retrieved, which showed a 57.5% rate of response. Quantity surveyors had the highest number of responses with 16.7% followed by Architects with 15.5%. Engineers had the lowest response of 12.1% followed by Builders with 13.2% response. The questionnaires were distributed to a representative number of the sample population to cater for bias.



Table 2: Educational Qualification

Qualification	Frequency	Percent
HND	29	24.6
BSc	61	51.7
MSc	28	23.7
Total	118	100.0

Source: Field Survey

Table 2 above shows that the highest percentage (51.7%) of the respondents have a Bachelor's Degree while only 24.6% have a Higher National Diploma. A cumulative of 23.7% have attained a Master's degree, from these responses it can be inferred that the respondents are highly educated and therefore, reliable information was provided by the respondents.

Table 3: Client Type

Client	Frequency	Percent
Private	34	28.8
Public	84	71.2
Total	118	100.0

Source: Field survey

Table 3 above shows a large percentage of the respondents participated in Design Bid Build projects owned by public clients. This aligns with findings in literature that the Design Bid Build procurement method is still widely used especially in public projects.

Establishing the extent to which Relationship are Managed in Construction Project Teams

This was achieved by using practices of relationship management. These practices have been used by researchers to determine critical success factors, roles of project managers and most influencing factors in various cases of relationship management. These practices were cumulated and a total of seventeen which are relevant to this study were used in the questionnaire.

Table 4: Extent to which relationship are managed

RM practices	Mean
There was induction of new team members to ensure they accept goals, culture and behaviour patterns established by the team	1.95
Individual interest was drawn towards overall project objectives	1.97
There was encouragement of positive 'can do' attitude	2.07
Team members were motivated to improve better performance	2.19
There was clear definition of roles and responsibilities for team members	2.30
There were good communication channels for team members	2.31
There was periodic re-evaluation of mutual beliefs	2.39
Team members were encouraged to work together rather than alone	2.44
There was trust between the manager and team members	2.45
Team members were treated equally	2.50
Team members participated in decision making processes	2.60
There was a culture of learning and innovation within the team	2.72
Trust was fostered amongst team members	2.78
Resolution of conflicts were facilitated within the team	2.80
Open and effective communication was encouraged amongst team members	2.82
Hierarchy was considered in decision making	3.37
Preservation of organisational and personal ties	3.45
Average Mean	2.54



Table 4 above shows that induction of new team members had the lowest mean response. This could be attributed to the described adversarial nature of Design Bid Build projects. Preservation of organisational and personal ties had the highest mean response of 3.45 this is contrary to the findings in literature in places like China where participants in public projects were not allowed to keep personal ties. Overall, the average mean score was 2.54 which is indicative of a low level of application of relationship management practices in DBB projects.

Extent of Project team Effectiveness

Extent of team effectiveness was determined by a list of six attributes that describe an effective team.

Table 5: Descriptive Statistics

Attributes	Mean
Team members complete their task on time and as required	2.03
Conflict is resolved within the team without confrontation	2.64
There was cooperation between team members	2.93
There was effective coaching from team leadership	2.66
There was effective planning and communications mechanisms to manage interdependencies	2.27
Team members had adequate knowledge of the project mission and objectives	2.91
Average mean	2.57

Source: Field Survey

Table 5 above depicts the extent to which the teams were effective. Team members completing their task on time had the lowest mean score of 2.03 while cooperation between team members had the highest mean score of 2.93. the average mean score of 2.57 shows a low level of team effectiveness. This could be attributed to the level of application of RM.

Nature of Relationship Between Rm Practices and Team Effectiveness

The relationship between RM practices and team effectiveness was established using regression analysis.

Table 6: Table of Coefficients

	Unstandardized Coefficients		Standardized Coefficients			Correlations		Collinearity Statistics		
	B	Std. Error	Beta	T	Sig.	Zero-order	Partial	Part	Tolerance	VIF
Constant	-0.10	0.15		-0.69	0.49					
Independent	1.06	0.06	0.86	18.36	0.00	0.86	0.86	0.86	1.00	1.00

Dependent variable: Team effectiveness

Table 6 above shows the extent to which the independent variable contributes to the value of the dependent variable. The t-value of 18.36 which >2 indicates a statistical significance. A VIF value that is not below 0.1 and a Tolerance value not above 10, implies that there was no multicollinearity thus, making regression values valid.

Table 7: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	53.925	1	53.925	337.14	.000 ^b
Residual	18.554	116	.160		
Total	72.479	117			

Table 7 above is the ANOVA table determines whether a linear relationship exist between variables. The values (F (1,116) =337.14, p<0.001) shows that the model has reached statistical significance and that the relationship



among the variables is not due to chance, therefore, the results can be accepted. The F value of 337.14 shows a strong relationship between the dependent and independent variable

Table 8; Regression Model

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate	Durbin-Watson
1	.863 ^a	.744	.742		.39994	1.931

Table 8 above shows the Durbin-Watson statistics also fell within an expected range, thus indicating that the assumption of no autocorrelation of residuals has been met as well. The results above imply that further analysis can be carried out.

Table 9: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			Sig. F Change
					R Square Change	df1	df2	
1	.863 ^a	.744	.742	0.40	.744	1	116	.000

Dependent variable: Team Effectiveness; Independent variable: RM practices

Table 9 above shows the results of the regression. The R square value is the proportion of the variance in the dependent variable which is predicted from the independent variable. This value indicates 74.4% variance in team effectiveness can be predicted as a result of RM practices. This also indicates a strong association between team effectiveness and RM. The adjusted R squared value depicts a more honest value of the R squared. It shows that, only 0.02% of the variance in team effectiveness is by chance. These results show that the independent variable (RM) can sufficiently predict the dependent variable.

FINDINGS

- Relationship management practices are lowly applied in design bid build projects
- Relationship management practices are applied more on projects owned by private clients than those owned by private clients
- Relationship management is perceived as highly important amongst construction practitioners
- Trust is considered as a very important determinant of RM

CONCLUSION

The study identified the measures used in project relationship management, established the extent to which these measures are applied in design bid build projects and the nature of relationship between these measures and team effectiveness thus achieving the objectives of the research. Through a comprehensive literature review, several RM practices were identified and 17 that were specific to PRM were extracted. The study went further to provide empirical evidence that non-contractual relationships in design bid build projects are not well managed. Moreover, the research also, showed that practitioners also consider relationship management as important in managing construction project teams. This study highlights the importance of managing relationships on construction project teams and confirms the importance of project relationship management practices as outlined by (Meng & Boyd, 2017). Furthermore, previous studies have mainly concentrated on the management of contractual relationships however this research significantly contributes to literature through assessing the nature of non-contractual RM. This study has contributed to the body of knowledge by establishing the nature of non-contractual relationship management in design bid build projects. Efforts should made to incorporate RM practices in managing construction project teams to improve team effectiveness. Further studies should contextualize relationship quality within design bid build projects based on project complexities and also establish the interdependencies that exist between RM practices, Team effectiveness and project success



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