

Project Communication Management and Project Quality of Construction Firms in South - South Nigeria

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Abstract: This study investigated the correlation between project communication management and project quality within construction firms in South-South Nigeria. Employing a cross-sectional survey, the research involved a population of 545 staff across 24 operational construction firms, with a sample size of 226 staff selected through simple random sampling. Questionnaires were utilized to collect data, and Spearman Rank Order Correlation Coefficient was employed for data analysis. The findings indicated a significant positive relationship between project communication management practices and project quality. The study concludes that improving project communication management can positively impact the project quality of construction firms in South-South Nigeria. Consequently, the study recommends that construction firm management should prioritize effective communication management to enhance project quality, leading to increased stakeholder satisfaction and project durability.

Keywords: Project communication Management; Project Quality; Stakeholder's Satisfaction; Project Durability

1.0 Introduction

The importance of project quality is multifaceted, as various stakeholders view it through different lenses. Clients perceive project quality as a means to maximize satisfaction, while workers consider compliance with standards as a measure of quality. Finance management often equates project quality with profitability, and government projects must adhere to population safety standards (Padhy, 2013). Juran and Godfrey (1998) define project quality as the product qualities that satisfy customer wants and expectations, contributing to market share growth or sales revenue generation. El-Maaty et al. (2016) identify factors such as experienced project teams, clear responsibilities, effective project monitoring, and inspection teams that influence project quality.

Collaboration among all parties involved is highlighted as a key factor in producing quality outcomes (Matthews et al., 2000). Vasista (2017) defines project quality as the sum of features and attributes of a product, process, service, or system that affect its capacity to meet expectations or satisfy demands. Peri et al. (2002) emphasize that "quality" encompasses both project deliverables and project management standards. Yang (2018) underscores the significance of project quality for economic growth, safeguarding public rights, maintaining business reputation, and upholding national honor.

Anyanwu and Nwokah (2008) stress that a project's quality is evaluated by comparing it to similar endeavors. Mathew et al. (2000) propose that productivity and quality attainment can be improved through effective communication during the building design process and collaboration with partners. Kiradoo (2017) suggests that project communication management is a crucial tool for maximizing the quality of project deliverables and ensuring timely completion. Ali, Abbas, and Abdulameer (2019) emphasize the importance of effective project communication for on-time project completion and high-quality results.

Ali (2019) notes that timely completion of project operations relies on efficient communication, and Anca et al. (2009) highlight the role of communication in addressing quality issues, emphasizing its importance in both quality assurance and quality management. While several scholarly works have explored ways to enhance project quality, there is a gap in understanding how project communication management relates to the project quality of construction firms in South-South Nigeria.

Statement of problem

Stakeholders' dissatisfaction and the non-durability of projects have consistently been identified as key issues associated with project communication management (Alias et al., 2014). Osemenan (1987) highlighted Nigeria's recognition for having the highest number of abandoned and failed projects worth billions of naira. The collapse of infrastructure due to poor project quality has led to significant financial losses and, more importantly, the loss of lives. An example is the collapse of a two-story building in Ada George, Port Harcourt, on June 30th, 2023, attributed to low project quality. Project failures have not only diminished economic development but also had a detrimental impact on the business sector.

Moreover, the problem of low project quality in construction firms is evident in the high rate of project relapse, adversely affecting the fortunes of these firms. The dynamic and unpredictable nature of the Nigerian business environment, marked by constant changes in government policies and fluctuations in the prices of goods, has further exacerbated the issue of poor project quality in Nigeria. Issa and Akhigbe (2022) observed that the low project quality of construction companies has led to a high rate of project abandonment despite substantial financial investments. Many construction firms have struggled to operate efficiently, hindering the satisfaction of various stakeholders and posing a threat to the continuity of the firms. To address the persistent problems associated with project quality, this study examines how project communication management is related to the project quality of construction firms in South-South Nigeria.

Aim and Objectives of the Study

The aim of this study is to examine the relationship between communication management practices and project quality of construction firms in South - South Nigeria. The specific objectives are to;

i. Examine the relationship between project communication management and stakeholder's satisfaction of construction firms in South - South Nigeria.

ii. Investigate the relationship between project communication management and project durability of construction firms in South - South Nigeria.

Research Questions

The following research questions served as a guide in this study;

- i. How does project communication management relate with stakeholders' satisfaction of construction firms in South South Nigeria?
- ii. What is the relationship between project communication management and project durability of construction firms in South South Nigeria?

Research Hypotheses

To answer the above research questions, the following null hypotheses were proffered;

HO₁: There is no significant relationship between project communication management and stakeholders' satisfaction of construction firms in South - South Nigeria.

HO₂: There is no significant relationship between project communication management and project durability of construction firms in South - South Nigeria.

2.0 Literature Review

The theoretical foundation of this study is rooted in lean construction theory. Introduced in the mid-1990s, lean construction theory represents a novel approach to construction management (Koskela et al., 2002). Originating from lean production principles developed by the Toyota Company in Japan, lean construction aims to minimize material, time, and effort waste in the production processes (Prayuda et al., 2020). In contrast to traditional views, lean construction defines "delivery" in the context of the actual work processes involved in taking a facility from concept to the customer (Ballard & Zabelle, 2000). Lean, as a management approach, seeks to reduce waste and synchronize requirements to meet market demands efficiently both in the short and long term (Georgescu, 2011).

According to Koskela et al. (2002), lean construction theory is a methodology focused on designing production processes to minimize waste of materials, time, and effort, ultimately delivering the most value. The core objective of lean construction theory is to create value throughout the project life cycle for both customers and supply chain partners (LCI, 2016). Fundamental to the principles of lean construction is the elimination of waste and non-value-added operations, leading to increased productivity and enhanced project performance in terms of quality, schedule, and cost (de la Garza, 2006).

Conceptual Framework



Figure 2.1: Conceptual framework of Project communication management practices and project quality.

Sources: Project communication management was adapted from Alotaibi (2019). While the measures of project quality were adapted from Al-Shaaby and Ahmed (2018).

Project Communication Management

Project communication, as outlined by Bright, Kayes, McPherson, and Worrall (2018), involves the exchange, reception, processing, and interpretation of information through various channels, including oral, non-verbal, active, official, or informal means. It plays a crucial role in recognizing concerns, identifying risks, addressing misconceptions, and overcoming obstacles to project completion. Effective communication is vital for keeping team members, managers, and stakeholders informed and aligned with project objectives (Muszynska, 2016).

Communication is a complex and multifaceted subject that impacts individuals differently in various contexts and settings (Moser, 2010). According to Ziek and Anderson (2015), project communication has two primary components: it is a skill essential for every project manager, and it is a critical element that significantly influences the success or failure of a project. Planning how to communicate with stakeholders, donors, and the project team is crucial for effective project communication management (Geyer, 2005).

Samakova, Koltnerova, and Rybansky (2012) emphasize that project communication management principles and procedures contribute to completing projects on time, within

budget, and in accordance with project specifications. Good communication keeps team members focused, updates stakeholders on project status, and aligns with the project plan, making it essential for achieving project objectives (Dow & Taylor, 2008).

Project Quality

Quality in a project, as defined by Sanvido et al. (1992), involves meeting the expectations of project stakeholders and serves as a measure of a construction project's success. Oakland (2005) emphasizes that quality begins with understanding client needs and concludes when those needs are fulfilled. Performance measurement, assessing success in terms of time, money, and quality, is fundamental to evaluating project quality (Obalemo, 2021). The quality of supporting processes, according to Bobera and Trnini (2006), significantly influences the quality of products and services. Jha and Iyer (2006) note that a project's quality is determined by its adherence to client satisfaction standards and meeting expectations. Flett (2001) defines project quality as the ability to manage a project, deliver goods or services on time, within budget, and preferably at a profit.

Project quality extends beyond the materials and tools used; it influences the entire construction process and management style to meet customer demands while adhering to scope, budget, and schedule (Rumane, 2013). In essence, project quality refers to a project's ability to fulfill its intended function satisfactorily (Faiz, 2020). According to Juran and Godfrey (1998), project quality is the absence of flaws, encompassing reducing rework, preventing customer dissatisfaction, and improving delivery performance.

A quality culture, especially in partnering projects, is highlighted by Leonard (2008). The Project Management Institute (2010) defines quality as the degree to which inherent characteristics meet criteria. Quality is viewed as a characteristic that must be controlled to achieve desired outcomes, whether in manufacturing or service industries (Flett, 2001). Jha and Iyer (2006) point out that factors like poor project conceptualization, a challenging socioeconomic environment, aggressive tendering competition, conflict among project participants, harsh climatic conditions, and a project manager's lack of knowledge impact project performance. Chapman (2003) notes that project quality refers to the investment made in a time-limited intervention that produces assets. It is determined by technical specifications and how well-defined technical criteria can be met (Vasista, 2017).

Stakeholder's satisfaction

According to the Project Management Institute (2017), stakeholder satisfaction is a critical aspect of project management and business success. Li, Ng, and Skitmore (2013) define stakeholder satisfaction as the realization of stakeholders' pre-project expectations in the actual performance of each project phase. When stakeholders are fully satisfied, they are more likely to contribute necessary resources, provide valuable feedback, and support the project's objectives (Meredith & Mantel, 2018). Any change that occurs during the project will not affect the project's goal as long as stakeholders are content (Usher & Whitty, 2017). The degree to which corporate stakeholders believe their expectations regarding the company's function have been satisfied impacts their willingness to participate in the function (Zeithaml et al., 1990). This satisfaction with the function's performance determines their readiness to engage in it. Stakeholders must be pleased with the project's overall performance, as emphasized by Chan and Chan (2004). Stakeholder satisfaction is determined by asking stakeholders of a particular project to score their satisfaction with two aspects—the project's procedure and the results it produced (Huijgens et al., 2016).

In successful projects, stakeholders are as crucial as time, money, and project delivery to specifications and quality standards (Hadjinicolau & Dumark, 2017). Setting consistent goals, objectives, and project priorities is essential for ensuring stakeholder satisfaction, and it is preferable that the project manager clearly explains the activities and objectives of the project to stakeholders (Jergeas, 2000). According to Davis (2014), one of the important success factors for determining a project's success is how well stakeholders are satisfied with their work and how well they can fulfill their tasks within the project's restrictions.

Success can also be viewed in terms of stakeholder satisfaction, benefits to the project's ownerorganization, and long-term effects on the project environment (Radujkovic & Sjekavica, 2017). Pekki (2016) suggests that stakeholder satisfaction results from key beneficiaries being fully engaged in SPI activities, promoting the success of those efforts. Ensuring stakeholder satisfaction involves effective communication, active engagement, managing expectations, and addressing concerns throughout the project lifecycle (Meredith & Mantel, 2018). Westerveld (2003) underscores the importance of the concept of "satisfaction" by identifying six categories, five of which are related to customer satisfaction: project results (Budget, Schedule, Quality), appreciation by the client, by project people, by users, by contractual partners, and by stakeholders.

Project durability

Durability is the capacity of a building to maintain the performances for which it was designed over its lifetime. It plays a crucial role in sustainable construction, as insufficient durability can lead to unexpected costs for repairs or reconstruction, along with environmental and social impacts. According to De Marco (2018), structural degradation can be attributed to poor durability design.

To ensure the defined service life in terms of physical deterioration, the designer must undertake a durability design for the construction, considering key criteria. Durability, in this context, refers to the ability to withstand wear, pressure, or damage—a relative term indicating the degree of permanency. It represents the project's ability to endure the test of time, remaining robust and functional even in the face of challenges (Anca et al., 2009).

Empirical Review

Magezi, Abaho, and Kakooza (2021) conducted a study on successful consortia engagements and effective project communication, focusing on the use of consortia by various organizations in central, south-west, and west-nile Uganda. The cross-sectional study involved a sample of 70 out of 86 NGOs, utilizing self-administered survey forms for data collection. The findings indicated that effective project communication plays a crucial role in successful consortium interactions, emphasizing the importance of project communication planning, information dissemination, and project progress reporting.

In another study, Kombe (2015) investigated the impact of Project Management Information Systems (PMIS) on project success, using World Vision Tanzania as a case study. The research focused on software quality, PMIS information output quality, and PMIS utilization in contributing to project success. The study employed both qualitative and quantitative research methods, including interviews, questionnaires, and direct observations. The findings highlighted the significant contribution of PMIS to project success, improving project planning, monitoring and evaluation, and overall project outcomes.

Khan, Singh, Kaur, and Arumugam (2020) explored the success of construction projects in Abu Dhabi, United Arab Emirates, with a quantitative research approach. The study evaluated project success indicators such as project quality, communication, cost, scope, and planning. The research utilized convenience sampling with a minimum sample size of 100 respondents. The findings suggested a positive and substantial association between the identified project success indicators and the timely completion of construction projects, emphasizing the importance of various factors in enhancing project delivery.

Majeed (2020) conducted a thesis examining the impact of project communication on project success in Pakistan, with a focus on the mediating role of trust and the moderating role of authentic leadership. The study involved 350 employees from construction firms in Pakistan's twin cities, both private and public. The results indicated that the relationship between project communication and trust is strengthened by the moderating effect of authentic leadership, highlighting the mediating role of trust in enhancing the interaction between project communication and project success.

3.0 Methodology

The study focused on the relationship between project communication management as an independent variable and project quality as the dependent variable, measured through stakeholders' satisfaction and project durability. The cross-sectional survey targeted 545 staff from 24 construction firms in the south-south region of Nigeria. For sample size determination, Yemen's (1968) formula was employed, resulting in the distribution of 226 questionnaires to employees in the selected firms. A simple random sampling technique was chosen to ensure a true representation of the entire population and reduce researcher bias in sample case selection. Project communication management was assessed using 5 items, while project quality was measured through stakeholders' satisfaction and project durability, each comprising 5 items. The

Likert scale, ranging from 1 (strong disagreement) to 4 (strong agreement), was utilized for rating items. The Spearman Rank Order Correlation Coefficient statistical tool, implemented with SPSS version 25, facilitated the analysis of bivariate hypotheses. This approach allows for assessing the strength and direction of relationships between variables in your study.

4.0 Result

A total of 226 questionnaires were distributed and 202 copies, representing 89% of the total, were returned and used for the study. The hypotheses were tested at a 95% confidence interval, indicating a 0.05 level of significance. The decision rule was set with a critical region of p > 0.05 for accepting the null hypothesis and p < 0.05 for rejecting the null hypothesis. This significance level helps determine whether the observed results are likely due to chance or if there's a significant relationship or difference as per your hypotheses.

Table 1: Project Communication Management and Stakeholder's Satisfaction

| | | Correlations | | |
|----------------|---------------------------|--------------------------------|--|-------------------------------|
| | | | Project Communication Management | Stakeholder's Satisfaction |
| | Project Communication | Correlation Coefficient | 1.000 | .744** |
| Spearman's rho | Management | Sig. (2-tailed) | | .000 |
| | | Ν | 202 | 202 |
| | Stakeholders Satisfaction | Correlation Coefficient | .734** | 1.000 |
| | | Sig. (2-tailed) | .000 | |
| | | Ν | 202 | 202 |
| | | | | |

Correlations

**. Correlation is significant at the 0.01 level (2-tailed). Source: SPSS Output, 2023

Hypothesis one: There is no significant relationship between project communication management and stakeholder's satisfaction.

Data in table 1 reveal that there is a significant relationship between project communication management and stakeholder's satisfaction (p = .000 and rho = 0.734) hence we find that project communication management is associated with stakeholder's satisfaction, and the relationship is positive. This means that, an increase in project communication management will lead to a corresponding increase in stakeholder's satisfaction vice versa. Based on the decision rule of p < 0.05 for null rejection; we therefore reject the null hypothesis and restate that *there is a significant relationship between project communication management and stakeholder's satisfaction.*

Table 2:Project communication management and stakeholder's satisfaction

| Correlations | | | | | | | |
|----------------|-----------------------|--------------------------------|---------------|------------|--|--|--|
| | | | Project | | | | |
| | | | Communication | Project | | | |
| | | | Management | Durability | | | |
| | Project Communication | Correlation Coefficient | 1.000 | .697** | | | |
| Spearman's rho | Management | Sig. (2-tailed) | | .000 | | | |
| | | Ν | 202 | 202 | | | |
| | Project Durability | Correlation Coefficient | .697** | 1.000 | | | |
| | | Sig. (2-tailed) | .000 | | | | |
| | | Ν | 202 | 202 | | | |
| | | | | | | | |

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Output, 2023

Hypothesis two: There is no significant relationship between Project Communication management and Project Durability.

Data in table 2 reveal that there is a significant relationship between project communication management and project durability (p = .000 and rho = 0.697) hence we find that project communication management is associated with project durability, and the relationship is positive. This means that, an increase in project communication management will lead to a corresponding increase in project durability vice versa. Based on the decision rule of p < 0.05 for null rejection; we therefore reject the null hypothesis and restate that *there is a significant relationship between project communication management and project durability.*

5.0 Discussion of Findings

Based on the findings of the field survey, the study made the following observations:

Relationship between Project Communication Management and Stakeholder's Satisfaction:

The bivariate hypotheses examining the relationship between project communication management and stakeholder's satisfaction revealed a significant connection between these two variables. The Spearman correlation coefficient showed a p-value of 0.000, which is less than the significance level of 0.05 (p=0.000<0.05). This implies that project communication management has a significant and positive relationship with stakeholder's satisfaction. The correlation coefficient (r) of 0.734 indicates a strong positive association between project communication management and stakeholder's satisfaction. This aligns with the study objective, and it is consistent with Yang et al. (2011), who emphasize the importance of stakeholder satisfaction in determining the success of project communication management.

Relationship between Project Communication Management and Project Durability:

The bivariate hypotheses investigating the relationship between project communication management and project durability also revealed a significant connection. The Spearman correlation coefficient indicated a p-value of 0.000, which is less than the significance level of 0.05 (p=0.000<0.05). This implies that project communication management has a significant relationship with project durability. The correlation coefficient (r) of 0.697 suggests a strong positive relationship between project communication management and project durability. Therefore, the study's second objective, examining the relationship between project communication management and project communication management and project durability, Abbas, and Abdulameer (2019), who emphasize the crucial role of effective project communication in completing projects on time and ensuring high-quality results. Anca et al. (2009) also highlight the importance of communication in addressing quality issues and contributing to the longevity of projects.

6.0 Conclusion

The quality of projects undertaken by construction firms is significantly influenced by their effective management of project communication. Adequate communication management in projects enhances the firm's capacity to deliver durable and high-quality outcomes to relevant stakeholders. There exists a substantial correlation between project communication management and the quality of construction firms' projects. This indicates that proficient communication management directs attention toward improving project quality. Failure to manage project communication properly may negatively impact the project's durability. Communication holds great relevance in any organization as it facilitates the exchange of ideas and collaboration among team members, contributing to the enhancement of project quality and durability. Instances of project setbacks due to inadequate communication among team members are common. However, with effective project communication management, organizations can readily identify areas of deficiency and improvement, thereby enhancing project quality and durability even after project completion. In conclusion, improving project communication management is integral to enhancing the project quality of construction firms in South-South Nigeria. Aligned with the findings and conclusions, the following recommendations are suggested:

- i. Construction firm leadership should prioritize effective communication management to prevent poor project quality, consequently enhancing project durability and stakeholder satisfaction.
- ii. Ensure the management of construction firms focuses on delivering high-quality and timely dissemination of information to enhance organizational operations, thereby contributing to improved project quality.
- iii. Construction firm management should implement proper project communication management by choosing the most suitable communication channels. This strategy will minimize conflicts among team members and contribute to heightened client satisfaction.

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