



Effect of Communication on Construction Project Performance Indicators in Plateau State, Nigeria

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ABSTRACT

The construction industry significantly contributes to a state and nation's gross domestic product GDP. This cannot be achieved when communication is not adequately employed to improve the performance and delivery of projects. This study aims to examine the effect of communication on project performance and delivery to enhance project performance delivery. This study was conducted in the Plateau state of Nigeria. A quantitative research approach was employed. One hundred thirty-two respondents were randomly selected, comprising Architects, Builders, Engineers and Quantity Surveyors. The result of the study revealed that construction professionals in the industry have expert knowledge of phone calls, face-to-face communications, and memos. The study also revealed that resources and cost were relevant factors in construction project performance delivery in the study area. The study shows that an R-value of 0.97, R-Square value of 0.943 and Adjusted R-Square of 0.927 with an F-statistics value of 58.101 was significant, as shown by the p -value of 0.000^b. The result also showed that about 94.3% of the project's performance delivery is highly influenced by the methods of communication adopted and factors affecting the effect of communication. Consequently, the adopted communication factors are the significant determinants of project delivery success as indicated by the standardized beta coefficient of 1.199 and -.270 and t-statistics of 6.438 and -1.452 which is significant at 0.000 and 0.038.

Keywords: Communication, Construction professionals, Cost, Project performance, Project delivery.

INTRODUCTION

The construction sector is an economic investment, and its relationship with economic development is well-positioned (Ishaq, Omar, & Yahya, 2019), playing a significant role in the economy and infrastructure project delivery. Activities include planning, construction, alteration repairs, demolishing buildings, and engaging in engineering works and other structures. In Nigeria, construction contributed 7.94% to the nominal GDP in the first quarter of 2020 (NBS, 2020).

Communication originated from the Latin word communication, which means "to make common" (Das & Mishrat, 2020). Communication is the process by which information and data are passed between individuals and or organizations through previously agreed media channels and structures (Adi & Nurudeen, 2017). According to Dziekoński (2017), the main goal of communication within a project team is to satisfy the information needs of all its members. It also involves the process of the



exchange of information, messages, ideas, attributes, feelings, and reactions.

Communication problems in construction projects can arise because of Internal and external influences. Internal influence is classified as "Direct influence" resulting from a lack of shared understanding or poor communication between and amongst project participants in project specifics and contractual commonalities. External influence is classified as "Indirect influence" resulting from project requirements which the project participants and owner (s) do not have control over, like a statutory requirement, regulatory condition, external supervision of health and safety (H&S), environmental condition (weather), media, government, currency, inflation, infrastructure, the people, culture, language (Yakubu et al., 2019). This external and internal influence can cause a significant problem in the construction industry's performance. In the construction industry, communication is considered the starting point of all activities in a project (Zulch, 2016). When communication is neglected, subordinates are cynical and lose trust and respect towards the organization and the leaders (Rana, 2013; Opeyemi, 2021). There is a need to design and adopt an agreed method of communication among the team to avoid a lack of performance.

Therefore, for a country to have meaningful and sustained development, it must pay critical attention to its construction sector for performance. These project performance measures used by construction are cost, time and quality (Agboola, Abbas, Sati, & Sanusi, 2023). Customer satisfaction, project profitability, labour productivity, safety, and teamwork are others. There is a relationship between project performance delivery and communication. Performance on the site depends on effective communication among the workers (Olanrewaju, Tan, & Kwan, 2017).

The stakeholders' ability can influence the working environment and project objectives. Therefore, communication is the key performance success factor in this dynamic construction industry (Gamil & Rahman, 2021; Ishaq et al., 2019; Ojiambo, Kidombo, & Rambo, 2018; Yakubu, Ogunsanmi & Yakubu, 2019) and lifeblood of the construction industry (Rana, 2013).

The Nigerian construction industry has long struggled with project performance challenges, including delays, cost overruns, and compromised quality, which have hindered project timely and efficient completion. According to the Project Management Institute (2017), over half of all project budget risks stem from ineffective communication, improper dissemination channels, and poor time management in information flow. Communication breakdowns often lead to misunderstandings in construction projects, causing ambiguities in task definitions, critical processes, and project objectives. This lack of clarity can ultimately contribute to project failures. Therefore, there is a pressing need to develop an integrated framework that aligns leadership communication with key project knowledge areas, particularly in fostering project integration. An ineffective communication structure and unprofessional practices further exacerbate these challenges, leading to poor project performance. This negatively impacts Nigeria's GDP and discourages investment in the construction sector. Given these issues, this study investigates the critical factors influencing effective communication and their role in fostering collaborative working relationships for sustainable project performance delivery in the Nigerian construction industry.

Clear, coherent, and efficient communication skills must exist to ensure the successful work of all project participants. Information about a subordinate's performance is necessary to



determine whether a planned goal is achieved. This depends upon the quality of the relationship between the clients, professionals, contractors, and subcontractors, hence the purpose of the study.

LITERATURE REVIEW

Organization Communication

Communication is an essential activity in our daily lives and applies to an organization. An organization must communicate a message to its clients, buyers, distributors, and internal target groups, such as managers and employees. Furthermore, it is part of the organizational context in which employees are engaged or disengaged (Bakker, Albrecht, & Leiter, 2011). According to Whyte and Jimoh (2021), good communication practices are at the heart of every successful business. Communication serves two essential functions in every organization. It disseminates the information employees need to get things done and builds relationships of trust and commitment (Optum, 2015).

Construction Project Communication

Project deadlines and gate models drive construction projects, which provide predictability in a challenging working environment (Maier & Branzei, 2014). Therefore, tracking, monitoring, and communicating information critical for achieving project deadlines is essential. Communication leads to cooperation, cooperation to coordination, and coordination to project success (Badiru, 2012). A good relationship with stakeholders involved in the construction process is vital for project success. Hence, communication is important in keeping stakeholders engaged and getting valuable feedback (Mulcahy, 2016). The communication style will vary from one leader to another and from one project to another; however, the issue of communicating remains

an inherent part of leadership (Shakeri & Khalilzadeh, 2020).

Leadership Communication

Leadership styles that promote upward and downward communication have been shown to foster many positive outcomes within the workplace, group collaborations, and team contexts" (Kelly & MacDonald, 2019). In teams with a participative leadership structure, team members may need to communicate with each other Bergman, Small, Bergman, & Bowling (2014). Communication leads to developing leader-team relationships and greater information swapping (Henderson, Stackman, & Lindekilde, 2016). The project manager uses different leadership styles to communicate effectively (Zulch, 2014). Stevenson and Starkweather (2010) confirmed that leadership and communications are "critical" indicators for the successful completion of the project. Heldman (2011) opined, "The better the project manager communicates, the better and easier the project will proceed."

The behavior of team members directly affects the level of trust in interpersonal relationships (Decker, 2015). Since the project manager cannot communicate with all team members face-to-face, trust will be a major factor (Daim et al., 2012). Hakanen and Soudunsaari (2012) state that trust is a very important part of team building, just like team performance. Social relationships heavily influence the effectiveness of communication. Trust creates a strong relationship and knowledge and communication greatly influence the team's social capital (Furnell & Scott, 2014). Brewer and Strahorn (2012) observed that when you think about the human aspect of project management, trust is recognized as the most important indicator of the project's success. Without trust, creating coherent processes in the project environment is almost impossible.



Creating and maintaining relationships between project team members and stakeholders through effective communication is one of the requirements of successful project management (Hysa & Spalek, 2019). Effective communication creates a bridge between various stakeholders involved in the project, so it plays an essential role in project stakeholder management (Welch & Jackson, 2007).

MATERIALS AND METHODS

This study was carried out on the effect of communication on construction project performance indicators of time, cost, and quality in Plateau State, Nigeria. The respondents targeted were professionals involved in Plateau State construction projects, including Architects, Builders, Civil Engineers, Quantity Surveyors and others. The study employed a primary data source, a questionnaire. A self-administered questionnaire was administered to professionals using a purposive sampling technique. A purposive sampling technique was adopted in order to obtain relevant and valid information for the study (Saunders, & Townsend, 2018). The basis for selecting respondents was the respondents' qualities and ability to provide relevant information (Agboola, Idowu, Yusuf, & Musa, 2023). This method was crucial for the research to study a population sample with specific knowledge about the research. A total of 140 questionnaires were administered to respondents in the study area. However, only 125 questionnaires were completed, returned, and used for analysis because they were filled correctly. These 125 questionnaires represented an 89.3% response rate. This response rate is higher than 25.4% (Emuze, 2011) and 79.1% (Hamidu, Agboola, Mustapha, & Falade, 2024) in the construction industry.

The questionnaire consisted of two sections. Section one covered the demographic background of the respondents, such as educational background, professional background, years of experience and number of projects managed, while Section two asked respondents about the effect of communication on project performance. IBM Statistical Package for Social Sciences (SPSS) version 25 was used to analyze the data obtained from the questionnaire responses using mean and standard deviation (descriptive statistics). Data for the effect of communication on project performance utilized a 5-point Likert scale with a rating scale of very low ($1.00 \leq \text{Mean} < 1.50$), Low ($1.50 \leq \text{Mean} < 2.50$) (Moderate $2.50 \leq \text{Mean} < 3.50$), High ($3.50 \leq \text{Mean} < 4.50$) and very high ($4.50 \leq \text{Mean} < 5.00$). In describing the data, the study writes out the facts the way they are in transparent and fair descriptive reporting. Also, it filters out those matters which are not relevant to the research problem.

RESULT AND DISCUSSION

Respondents Profile

Table 1 below presents the profiles of the respondents. 33.6% were from an architecture background. 23.2% are from a civil engineering background, 24% are from a quantity surveying background, 11.2% are from a building background, and 8% are from other background. The result shows that the professionals are almost evenly represented. 51.2% have 11-15 years of experience, 28.8% have 6-10 years of experience, 11.2% have 1-5 years of experience, and 8.8% have 15 years and above experience. 45.6% of the respondents have handled 6-10 projects yearly, 28.8% have 1-5 projects, and 25.6% have 11 and above projects yearly. Also, 36.8% of the professionals hold bachelor's degrees, 57.6% hold master's degrees, 3.2% hold higher national diplomas, and 2.2% hold ordinary

national diploma certificates. Findings from the professional's demographic profile reveal that respondents are well-experienced and

educated enough to respond to this research enquiry.

Table 1: Respondents' Profile

S/N	Respondents' Details	Response	Frequency	Per cent
1	Professional background	Architecture	42	33.6
		Civil Engineering	29	23.2
		Quantity Surveyor	30	24.0
		Building	14	11.2
		Others (M & E)	10	8.0
2	Year of experience	1-5 years	14	11.2
		6-10 years	36	28.8
		11-15 years	64	51.2
		15 and above	11	8.8
3	Number of Projects handled yearly	1-5	36	28.8
		6-10	57	45.6
		11 projects and above	32	25.6
4	Highest level of education	OND/NCE	3	2.2
		HND	4	3.2
		Bsc.	46	36.8
		Msc.	72	57.6

Strategies of Communication Adopted in the Construction Industry

Table 2 shows the various communication strategies adopted by the construction firms in Plateau state. The result revealed that memos, Face-to-face conversations, Text messages, WhatsApp, Phone calls, MS Excel, MS Word, Google Mail and Yahoo mail are communication strategies that are highly adopted by the construction industries in the study's area with a mean of 4.37 to 3.62. Communication methods that are moderately adopted include facial expression and body language, with a mean of 2.94 and 2.75; Use of quip has a mean of 2.6190. Moreso those less adopted include the Use of MS Outlook with a mean of 2.4286, visual alarms with a mean of 2.4286, Use of flag with a mean of 2.3889, Use of light with a mean of 2.3651, Use of sign languages with a mean of 2.2381 and Tele conferencing with a mean of 2.1746. However, the less effective means of

communication in construction include writing memos, face-to-face conversations, text messages, WhatsApp, phone calls, MS Excel and MS Word.

Levels of Knowledge of Communication Methods

Table 3 shows the levels of knowledge in the Use of communication methods adopted in the study's area. Results revealed that professionals have high knowledge of phone calls, face-to-face conversations and memo writing, with a mean score of 3.7460, 3.6190 and 3.5873, respectively. The professionals have moderate knowledge in the Use of Tele conferencing, Whats'app, text messages, MS Word, Visual alarm, Use of quip, MS project and Use of Gmail with a mean of 3.4286, 3.3333, 3.2857, 3.1746, 3.0476, 3.0476, 3.0317 and 2.9286, respectively. Furthermore, the professionals have less knowledge of the method of communication, which includes

using sign language with a mean of 2.4444, Use of lights with a mean of 2.4286, Use of Yahoo mail with a mean of 2.3730, And Video call with a mean of 2.2540, MS excel with a

mean of 2.2222, Facial expression and body language with a mean of 2.1746, Use of flag with a mean of 2.1429, and Using outlook which has a mean of 1.9841.

Table 2: Communication strategies adopted by the construction industry

S/N	Items	N	Mean	Std. Deviation	Position	Remarks
	Writing of memo	126	4.3651	0.9766	1 st	High
	Face-to-face conversation	126	4.2222	1.0873	2 nd	High
	Text messages	126	4.2143	0.7548	3 rd	High
	Whats'app	126	4.1429	1.1847	4 th	High
	Phone call	126	4.0317	1.2062	5 th	High
	MS Excel	126	4.0079	1.0991	6 th	High
	MS word	126	4.0000	1.0507	7 th	High
	MS project	126	3.9444	1.2668	8 th	High
	Use of Gmail	126	3.8651	1.0381	9 th	High
	Use of Yahoo mail	126	3.6190	1.0797	10 th	High
	facial expression and body language	126	2.9444	0.9407	11 th	Moderate
	Video call	126	2.7460	1.6489	12 th	Moderate
	Use of quip	126	2.6190	1.4580	13 th	Moderate
	Use of MS Outlook	126	2.4286	1.1130	14 th	Low
	Visual alarms	126	2.4286	1.0540	15 th	Low
	Use of flag	126	2.3889	0.8577	16 th	Low
	Use of light	126	2.3651	0.9261	17 th	Low
	Use of sign languages	126	2.2381	1.4391	18 th	Low
	Tele conferencing	126	2.1746	1.0960	19 th	Low
	Valid N (listwise)	126				

Table 3: Levels of Knowledge on the Communication Methods

S/N	Item	N	Mean	Std. Deviation	Ranking	Remarks
	Phone call	126	3.7460	0.4370	1 st	High
2.	Face to Face Conversation	126	3.6190	0.488	2 nd	High
3.	Writing of Memo	126	3.5873	0.555	3 rd	High
4.	Teleconferencing	126	3.4286	0.612	4 th	Moderate
5.	What is up	126	3.3333	0.7797	5 th	Moderate
6.	Using text messages	126	3.2857	0.8377	6 th	Moderate
7.	MS Word	126	3.1746	0.7275	7 th	Moderate
8.	Use of quip	126	3.0476	0.7027	8 th	Moderate
9.	Visual alarm	126	3.0476	0.6555	8 th	Moderate
10.	MS project	126	3.0317	0.8191	10 th	Moderate
11.	Use of Gmail	126	2.9286	0.6949	11 th	Moderate
12.	Using sign languages	126	2.4444	0.7327	12 th	Low
13.	Use of lights	126	2.4286	0.8711	13 th	Low
14.	Use of Yahoo mail	126	2.3730	0.9443	14 th	Low
15.	Video call	126	2.2540	0.8191	15 th	Low
16.	MS Excel	126	2.2222	0.5781	16 th	Low



17. Facial expression and body Language	126	2.1746	0.7702	17 th	Low
18. Use of flag	126	2.1429	0.8919	18 th	Low
19. Using Outlook	126	1.9841	1.1383	19 th	Very low
Valid N (listwise)	126				

Effects of Communication on Project Performance Indicators

Table 4 presents the result of the field study on factors affecting communication in the construction industry. The result revealed ten factors that highly affect effective communication in the study's area, including Management and leadership styles, Political and community interference, Budget on communication, Lack of trust, Time and duration of the communication and Unclear objectives, ranked first to six factors that highly affect communication in the study's area with a mean of 4.4048, 4.1667, 4.1111,

4.1111, 4.0317 and 4.0238, respectively. Factors that moderately affect communication are Goal conflicts, with a mean of 3.4603; Hereditary difference, with a mean of 3.4127; Group relationship, with a mean of 3.3889; flattering information, with a mean of 3.3492, Poor or lack of network, with a mean of 3.2937, Educational background and experience with a mean of 3.2778, Information overload with a mean 3.2619, Poor listening ability, with a mean of 3.2540, Labor conflict with a mean of 3.1667 and Noise interference with a mean of 3.0635. the findings of this study are related to those of (Akinradewo, Ojo, and Oyefusi, 2018).

Table 4: Factors Affecting Communication in Project Performance Delivery

S/N Item	N	Mean	Std. Deviation	Ranking	Remarks
Management and leadership styles	126	4.4048	0.7816	1 st	High
Political and community interference	126	4.1667	0.7127	2 nd	High
Budget on communication	126	4.1111	0.6954	3 rd	High
Lack of trust	126	4.1111	0.7820	3 rd	High
Time and duration of communication	126	4.0317	0.7036	5 th	High
Unclear objectives	126	4.0238	0.8715	6 th	High
Bureaucratic bottleneck	126	3.8651	1.1268	7 th	High
Lack of training and undertrained workers	126	3.8254	0.9723	8 th	High
poor communication skills	126	3.8254	1.1529	8 th	High
Time zone and locations	126	3.7460	0.7791	10 th	High
Unclear channel of communication	126	3.7460	0.7583	10 th	High
Lack of planning	126	3.7222	0.7551	12 th	High
Goal conflicts	126	3.4603	1.0929	13 th	Moderate
Hereditary difference	126	3.4127	0.8224	14 th	Moderate
Group relationship	126	3.3889	0.8292	15 th	Moderate
Flattering information	126	3.3492	0.7410	16 th	Moderate
Poor or lack of network	126	3.2937	0.7163	17 th	Moderate
Educational background and experience	126	3.2778	0.7964	18 th	Moderate
Information overload	126	3.2619	0.9648	19 th	Moderate
Poor listening ability	126	3.2540	0.9545	20 th	Moderate

Labour conflict	126	3.1667	0.9778	21 st	Moderate
Noise interference	126	3.0635	0.7348	22 nd	Moderate
Valid N (listwise)	126				

Effect of Communication method on Project Performance Delivery

Table 5 shows the regression model summary and the ANOVA results on the effect of communication method on project performance delivery. The model presents an R-value of 0.97, R-Square value of 0.943 and

Adjusted R-Square of 0.927 with an F-statistics value of 58.101 was significant as shown by the p -value of 0.000^b. The result also showed that about 94.3% of the project performance delivery factors is highly influenced by the adopted methods of communication.

Table 5: Model Summary and ANOVA

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig F Change
1	.971 ^a	.943	.927	.06795	58.101	.000 ^b

a. Dependent Variable: Project performance delivery

b. Predictors: (Constant), Methods of communication adopted

The beta coefficient in Table 6 below shows that the methods of communication adopted and factors affecting effective communication

are the significant determinants of project performance delivery in the study area as indicated by the standardized beta coefficient of 1.199 and -.270 and a t-statistics of 6.438 and -1.452 which is significant at 0.000 and 0.038 significance level.

Table 6: Beta Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		t-stat.	Sig.
	B	Std. Error	Beta			
(Constant)	-1.244	.440			-2.826	0.026
Methods Adopted	1.431	.222	1.199		6.438	0.000

CONCLUSION

The study was conducted to assess the effect of communication on project performance indicators of time, cost, and quality in the Plateau state. The questionnaire survey and data analysis results show the extent to which the method of communication adopted can affect the project's performance delivery. Moreover, the levels of knowledge on the method of communication adopted can affect project performance delivery. Results show that personnel in the construction industry do

not have expert knowledge of most communication methods except phone calls, face-to-face conversations, and memo writing. Therefore, the communication methods are tradition-based. Furthermore, a host of factors affect communication in the study's area, as revealed by the results of the analyzed data from the survey. The results revealed that the method of communication and factors of effective communication have significant effects on project performance delivery in the construction industry in the study's area.



Performance delivery is influenced by the method of communication and other factors, as shown by the beta coefficient result, which is a significant determinant of project performance delivery success in the study area.

Recommendations

Given the study's Findings and Conclusions, the following recommendations were provided to enhance project performance delivery in Plateau State.

- i. The government should enact a policy on the communication method used in construction, with minimum requirements, to enhance project delivery.
- ii. The communication method should be indicated and clearly shown in the charter.
- iii. Construction industries should establish a policy for controlling and monitoring the communication method adopted for a particular contract from the initial stage to the handover stage.
- iv. There should be adequate training and retraining on communication methods used in the construction industry.
- v. Channels of communication should be adhered to.
- vi. An adequate Budget should be made available for communication.

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