

Effect of Communication Pattern on the Construction Project Success in North Central, Nigeria

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Abstract

Over the years, several projects in the Nigerian construction industry have failed to meet various indicators of project success due to communication breakdown among construction project stakeholders in Nigeria. In this regard, communication pattern was considered as a determinant of construction project success in Nigeria. The study adopted the quantitative research approach and survey research design. The population of the study was project managers and a sample size of 344 was determined while a questionnaire was distributed to project managers within northcentral, Nigeria to collect data. Data collected were analysed with inferential statistical techniques. The study found that chain pattern communication significantly impacts construction project success. Similarly, wheel pattern communication significantly influenced the construction project's success while circle pattern of communication also significantly impacted the construction project's success. It was concluded that the three communication patterns determine construction project success in north-central, Nigeria. Therefore, project managers should be mindful of these communication patterns to achieve timely construction projects without compromising quality. The study recommends the adoption of all three communication patterns in the life of every construction project.

Keywords

Communication Pattern, Construction Industry, Construction, Project Success, Project Stakeholders

1. Introduction

Throughout history, construction projects have consistently faced challenges leading to failures despite ongoing efforts to ensure success in the construction

industry (Stretton, 2023; Sibiya et al., 2015). Achieving success in construction projects is complicated due to the involvement of multiple stakeholders. Volden and Welde (2022) provided a detailed explanation of construction project success as the timely completion, delivery, and usefulness of the project to meet stakeholders' expectations. This concept has been extensively explored in academic literature.

One significant challenge identified as a cause of delays or failures in construction projects is ineffective communication among project stakeholders, particularly concerning communication patterns (Yap et al., 2017). This lack of effective communication has led to infrequent interactions, resulting in project members not having the necessary information to act promptly. The communication patterns within a project structure, including the level of formality, such as formal or informal communication, play a crucial role in project success (Shonubi & Akintaro, 2016). At times, unclear communication patterns have hindered relationships within project teams, making project execution more challenging.

Research indicates three primary communication patterns: chain communication, circle communication, and wheel communication (Shonubi & Akintaro, 2016; Michaels, 2002). In the chain communication pattern, information flows hierarchically and sequentially, while the circle communication pattern promotes group discussions. The wheel communication pattern involves the dissemination of instructions from superiors to subordinates. Based on these patterns, this study examines how communication patterns influence construction project success in North Central, Nigeria.

2. Literature Review

2.1. Construction Project Success

Ika & Pinto (2023) defined construction project success as when the project meets and exceed the technical performance specifications of project stakeholders and provides high level of satisfaction (Meredith & Zwikael, 2019). Neyestani (2016) earlier described construction project success as when such projects are timely completed within budget, to client's satisfaction. In the study of Williams (2016), six indicators of project success in construction were identified namely: company culture was top factor followed by single team, project setup, customer satisfaction and subcontractors and the construction site; and lastly is post-handover. Likewise, the study of Silva et al., (2019) in Sri Lankan involving one hundred and eight construction projects established project effectiveness as the first indicator of project success followed by project implementation efficiency, and compliance management efficiency as the third while the study of Mavi et al., (2023) emphasized project efficiency and effectiveness. The study of Sibiya et al., (2015) in the South African construction industry identified construction time, profitability and project management as the top three indicators of construction project success.

Project Completion: A project is termed successful when is timely completed

as stipulated in the contract (Nguyen et al, 2013). In a related definition, Munano (2012) described project completion as “the projected completion time as in the contract for the construction of the project”. Furthermore, the study of Kikwasi (2012) found that project completion is not often achieved as it was revealed that the three projects studied were completed at 22%, 30% and 44% respectively while the study that is related conducted by Murithi et al., (2017) shows that only 13 percent of the projects studied were completed within expected duration. Timely completion of project therefore has been observed by earlier studies as a success factor in construction industry.

Project Efficiency: Efficiency is the best possible output of time. It defines “doing things right” (Tsolas, 2011). This encapsulates meeting timeline, budget and quality. In context, project efficiency is being resourceful with various inputs of project (Milind Mehta et al., 2022). Construction project efficiency as captured by studies (Serrador & Turner, 2014) relates to achieving project specifications as detailed.

Project Delivery: This determinant of construction project success is about transferring the project to the client upon completion (Syed Zuber et al., 2018). According to Ram & Ronggui (2018), project delivery is the sequence of project phases, parties involved in the project and implicitly assigned roles, and obligations to undertaking parties. For example, lack of interaction among and amongst assignment crew members because of the nature of the conventional construction system conducted sequentially and constructed by segregated entities at some stage in the phase of layout and construction (Abdul Rahim & Chin, 2015). This resulted in recurrent claims, arguments among mission group members and price and time overrun (Azhar et al., 2014). Therefore, the successful delivery of a construction project is germane in context.

Based on extant studies (Cleary & Lamanna, 2022; Hussain et al., 2022; Okuden et al., 2022), construction project success has been measured from multiple dimensions. In this regard, the study desires to know the dominant indicators of project success in the construction industry.

2.2. Communication Pattern

Communication is the process by which information is exchanged between a sender and a receiver. It involves passing a message from a sender on the one hand, to a receiver on the other (Akinbode et al., 2024; Shonubi & Akintaro, 2016). To effectively communicate, the appropriate pattern must be used. This indicates that such a pattern helps to convey information to the right person or department. Similarly, Ming (2010) described communication patterns as how information is transmitted through defined channels so that the information can reach intended receivers in a timely and efficient manner. According to Shonubi and Akintaro (2016), the patterns of communication are formal and informal communication patterns in which employees exchange or share information or messages with each other in construction businesses.

Formal communication patterns are the official paths recognized by management. It is official, organization-sanctioned episodes of information transmission (Shonubi & Akintaro, 2016). It follows the formal, established official lines of contact (Richmond et al., 2005). Therefore, communication patterns involve formal and informal communication among employees within the organization to get work done. It has an effect on employee performance (Rogers, 2013). The patterns can be chains, wheels or circles of communication.

First, communication typically follows a chain of command, where subordinates receive instructions from their superiors (Hedlund, 2016). This hierarchical structure, known as the Chain pattern, represents a formal flow of information from top to bottom, commonly seen in military and certain business settings (Kush, 2016).

Secondly, the wheel pattern of communication involves a structure where each subordinate receives directions from a single authority figure or “An” and requires prompt feedback. An extremely centralized organizational hierarchy may hinder the development of wide informal communication networks as most communication is passed through proper channels (Lee, Kozlenkova, & Palmatier, 2015).

Thirdly, circle communication is a form of group interaction that fosters a web of connections and a feeling of belonging. By practicing active listening, purposeful speaking, and mindful self-awareness, circle communication highlights the importance of individual input while striving for consensus to serve the group’s purpose. This approach promotes a collaborative communication where every individual’s distinct viewpoint is valued to establish a shared foundation for action (Akinbode et al., 2024). It is established that circle communication transcends mere job titles and encourages people to be seen beyond their roles within the organization (Wellman & Gulia, 2018).

3. Theoretical Framework

This study is premised on Communication Theory and Circular Theory of Communication.

Communication Theory: This theory is an offshoot of Uncertainty reduction theory (URT) which was originally presented as some set of basic propositions explaining relationships between uncertainty and some factors of communication. The thrust of this theory is on interrelationships between basic communication factors among which are information-seeking behavior and reciprocity which are germane to this review as this promote dyadic information exchange. Berger and Calabrese (1975) explored the theory to explain how interaction and communication can reduce uncertainties between group members and this can be adopted to explain how to address uncertainties that often surround project execution. This in the view of Berger (1986) rest on human communication which can promote partnership based on collectivism in activities of mutual interest such as project success.

Circular Theory of Communication: This theory evolved from the work of

Wilbur Schramm in 1954, suggesting that communication involves a continuous interchange between the sender and the receiver of a message. In this model, the sender encodes the message before sending it, hence being termed as an encoder, while the recipient decodes the message upon receiving it, thus becoming the decoder. The study utilized Osgood and Schramm's circular theory of communication to highlight the importance of successful communication (Kolltveit & Grønhaug, 2004). This theory is rooted in Shannon and Weaver's communication model, with Schramm emphasizing the pattern of communication. Understanding the dynamics of interaction challenges the idea of communication as a linear sequence of steps, as individuals respond differently based on their personality, group influences, and the context in which communication takes place.

In the context of the study, different communication patterns may yield varied responses as different stakeholders interpret and act upon messages differently. The model proposes a simple communication pattern. Effective communication hinges on both parties being able to extract meaningful information from the message being conveyed. However, critics of the circular theory point out its oversight of semantic noise and its assumption about the timing of encoding and decoding. However, it remains relevant to projects that require effective communication among team members and stakeholders. Project managers should ensure that all team members are well-informed before undertaking any tasks to enhance performance and minimize the need for constant supervision.

4. Empirical Review

There are previous studies that are relevant to the current research. For example, Otieno et al. (2015) investigated the impact of employee communication on organisational performance in Kenya's horticultural sector. Using a descriptive survey design, the study collected data from employees of selected horticultural companies through structured questionnaires. Both descriptive (frequencies, percentages) and inferential (correlation, regression) statistical analyses were conducted. The findings showed that 65% of respondents agreed that effective communication facilitates information exchange, while 63% believed it enhances operational efficiency. Correlation analysis confirmed a significant positive relationship ($r = 0.466$, $p = 0.000$) between communication and performance. The study concluded that strong communication strategies improve efficiency, coordination, and productivity. It is recommended that organisations implement clear communication channels, feedback mechanisms, and employee engagement initiatives to enhance overall performance.

Similarly, Kibe (2014) conducted an empirical study on communication patterns that influence staff satisfaction and overall organizational performance. The main focus of the research was to examine the impact of communication patterns on organizational performance at Kenya Ports Authority. It also aimed to understand how an open-door communication policy affects organizational performance, how teamwork can enhance performance, how organizational structure

plays a role in performance, and the importance of formal communication channels in achieving organizational goals. The key takeaway from the study was that communication patterns are crucial for achieving high performance in organizations.

Ryynänen (2013) mentioned that there has not been much exploration into the internal communication networks in project sales. This article provides insights into how a supplier communicates internally during a project sales process using social network analysis and detailed qualitative data. They studied the project sales process and internal communication network of a company that provides material handling equipment. The results show that the internal communication networks are decentralized and complex, identifying four barriers and four drivers to effective communication during project sales. It appears that communication training is the most effective way to enhance internal communication.

Proctor (2014) demonstrated that effective two-way communication between employees, managers, and administration can improve attitudes and happiness, ultimately impacting job satisfaction within a department at a small college. The study involved members from the Enrollment Services Division of Southern Utah University, with the majority expressing satisfaction with their roles and a positive outlook on their work. While many organizations recognize that effective communication at all levels can improve organizational success and employee satisfaction, the connection between communication patterns and employee attitudes and happiness in a higher education setting has not been extensively studied. The decision to be happy and have a positive attitude has been a topic of various resources, emphasizing the importance of communication in influencing individual, team, and overall organizational culture.

Shonubi and Akintaro (2016) examined the impact of effective communication patterns on employee satisfaction and organizational performance. The discussion was based on a series of observational studies on communication and employee satisfaction. The research findings have underscored the synergistic relationship between communication patterns and successful employee performance within organizations. The authors also suggested that there is room for improvement and better performance if management in chain communication adopts the following recommendations: Ensuring clarity of ideas before communication, considering the physical and human context when communicating, analyzing the purpose of communication thoroughly, involving both top-down and bottom-up approaches in planning communication, emphasizing content and tone of messages, making messages meaningful to the recipient, focusing on concise and accurate communication with long-term significance, promoting active listening among stakeholders, following up actions with communication, and incorporating a feedback mechanism for effective communication.

A study conducted by Femi (2014) explored the significant link between communication and employees' performance in selected organizations in Lagos State, Nigeria. The research, carried out through a survey of 120 participants, revealed a

clear connection between good communication and enhanced productivity and commitment among employees. The findings suggest that organizations utilizing a structured communication approach should communicate regularly to improve employee dedication and performance.

Similarly, [Inedegbor et al., \(2012\)](#) delved into the impact of communication patterns on employee satisfaction in Nigerian companies. By surveying 100 small and large manufacturing and service firms in Lagos State, Nigeria, the study demonstrated substantial reliability and validity of the research instrument. Data analysis using descriptive statistics, percentages, and t-test analysis highlighted the importance of effective chain communication structures in the surveyed Nigerian companies. However, the degree of emphasis on these structures varied, with the nature of businesses (service versus manufacturing) and their size playing a role in shaping communication practices. This study aimed to assess how employee communication affects organizational performance in the agricultural sector in Kenya.

[Turkulainen et al., \(2014\)](#) enhances the understanding of project partner management by examining how partner communication is fostered and monitored throughout the various phases of the project's life cycle. By delving into the data processing perspective and the partner prominence framework, our study illustrates how partner communication practices vary among the passive, individual, and group modes of communication. The study illustrated how these practices are influenced by partners' prominence and the stage of the project life cycle. The findings highlight the necessity of a dynamic approach to comprehending partner management; different communication strategies are needed throughout the project's life cycle, which can be attributed to the varying levels of partner prominence.

[Nebo et al. \(2015\)](#) investigated the impact of effective communication on organizational performance. The research was prompted by concerns regarding the question and delays in accessing information that could enhance staff performance. The study utilized a survey research method and relied heavily on both secondary and primary data. The research population consisted of Academic and Non-academic staff at UNIZIK, with 170 non-academic and 130 Academic Staff members. The sample size of 166 was determined using the Taro Yamane method and stratified random sampling. Chi-square χ^2 was employed to analyze the hypotheses. Notably, there was a significant correlation found between effective communication and employee performance at UNIZIK. The study results indicate that effective communication is crucial for enhancing and streamlining employees' management performance within an organization. The researcher recommends that every organization prioritize effective communication as a fundamental aspect of its management strategies and devise strategic methods for storing information; this will help reduce the loss of critical information, minimize organizational conflict, reduce misunderstandings, and enhance information management.

[Muchinsky \(2017\)](#) suggested that "one of the most elusive organizational fac-

tors is communication, as organizational communication is such a dynamic phenomenon, it remains a challenging concept to measure". The communication styles managers employ to convey the organization's message are a subset of these elusive organizational factors and are equally challenging to measure. Understanding how communication is perceived by subordinates is crucial for fostering productive and enduring relationships between management and employees. Appropriate communication styles are integral to the success of organizations as they directly impact employee job satisfaction.

Pettit, Goris, and Vaught's (1997) study of 302 employees at two manufacturing firms demonstrated a direct relationship between communication and job satisfaction. The research revealed a link between communication styles of telling, selling, consulting, or joining and job performance and satisfaction. Moreover, these researchers identified indicators of job satisfaction related to communication, including "accuracy of information, desire for interaction, communication overload, trust in superiors, influence of superiors, and satisfaction with communication". Each of the four communication styles described by Pettit, Goris, and Vaught required a unique delivery style. Richmond et al., (2005) explain that managers utilize one of the "four communication styles of telling, selling, consulting, or joining to foster productive, satisfied employees."

In Lunenburg's (2011) research, the focus was on utilizing wheel structures and analysis as an effective way to improve communication efficiency. Apart from using wheel designs, another method to assist school administrators in evaluating communication patterns is through organizational analysis. Within wheel designs, a two-tier structure is considered the most organized and cohesive, as each component can only communicate with one other individual. For example, a school principal and his immediate subordinates (such as the assistant principal for operations, guidance, faculty, and the principal's assistant) likely form a wheel structure. The principal is denoted as A, with his assistant administrators identified as B, C, D, and E respectively. The subordinates relay information to the principal, who then provides feedback to them, usually in the form of decisions.

Ramos (2012) conducted a study on the impact of wheel patterns on staff performance within the North West region of an insurance company. The study revealed that the wheel pattern was effective in resolving issues among the company's employees. In the wheel structure, there is a central figure, group, or department that holds a pivotal position. In the case of the North West region of the insurance company being tasked by the central office to boost sales, the North West regional manager became the focal point for coordinating with local managers on the best way forward. The leader in this scenario would be the regional manager. An illustration would be the head office communicating with sales representatives operating in various regions.

5. Methodology

This study adopted a positivist research philosophy and a survey research design

was employed. The population of the study was project managers who were registered with the government in North Central, Nigeria. This study adopted a census sampling process and all the population to be covered. However, only 361 registered project managers responded to the questionnaire administered while only 344 copies of the questionnaire were properly completed. This confirmed that primary data was used for the study. The questionnaire for the first objective was adapted from [Crenshaw et al. \(2017\)](#). For the wheel communication, the study adopted [Lunenburg \(2011\)](#), and circle communication adapted questions from [Freire \(2000\)](#). The instrument used for data collection was subjected to a pilot test and the results show that it was valid and reliable. Data collection lasted for three weeks while data collected were subjected to statistical analysis (inferential statistics) run through regression analysis using Statistical Package of Social Sciences (SPSS). The results of the hypotheses is presented in the next sub-heading.

6. Results and Discussion

Ho₁: Chain pattern communication does not have any significant impact on construction project success in North Central, Nigeria.

The model synopsis in [Table 1](#) reveals how much of the variance of the dependent variable (CPS) is explained by the model. In this case the adjusted R square is -0.003 if expressed by a percentage will be 3%. This implies that the model explains 3% of the variance in the construction project success.

Table 1. Model summary of chain pattern of communication and CPS.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.012 ^a	0.000	-0.003	0.552	0.000	0.047	1	342	0.829

a. Predictors: (Constant), Chain pattern of communication. Source: Computed Data, 2024.

Table 2 shows the ANOVA assessment of the statistical significance (0.829). The F-value for the model was obtained by dividing the regression mean square (0.014) by the residual mean square (0.305). The F-value for the model is equal to 0.047.

Table 2. ANOVA^a of chain pattern of communication and CPS.

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	0.014	1	0.014	0.047	0.829 ^b
	Residual	104.311	342	0.305		
	Total	104.326	343			

a. Dependent Variable: CPS, b. Predictors: (Constant), Chain pattern of communication. Source: Computed Data, 2024.

Table 3 described the variables that are statistically significant and with exclu-

sive contribution to the model obtainable under the sig column in the Table, it reveals the strength of the contributions of the independent variable (Chain pattern of communication) to the dependent variable (CPS). The Table revealed that chain pattern of communication (0.829) made significant contributions to the model. The study rejects the null hypothesis and accepts the alternate. Therefore, chain pattern communication has significant impact on construction project success in North Central, Nigeria.

Table 3. Coefficients^a of chain pattern of communication and CPS.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.519	0.237		19.070	0.000
¹ Chain pattern of Comm	0.012	0.053	0.012	0.217	0.829

a. Dependent Variable: CPS. Source: Computed Data, 2024.

Ho₂: Wheel pattern of communication has no significant influence on the success of construction projects in North Central, Nigeria.

The model synopsis in **Table 4** shows how much of the variance of the dependent variable (CPS) is explained by the model. In this case the R square is 0.001 if expressed by a percentage will be 1%. This implies that the model explains 1% of the variance in CPS.

Table 4. Model summary of wheel pattern of communication and CPS.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.028 ^a	0.001	-0.002	0.552	0.001	0.277	1	342	0.599

a. Predictors: (Constant), Wheel pattern of communication. Source: Computed Data, 2024.

Table 5 shows the ANOVA assessment of the statistical significance (0.599). The F-value for the model was obtained by dividing the regression mean square (0.084) by the residual mean square (0.305). The F-value for the model is equal to 0.277.

Table 5. ANOVA^a of wheel pattern of communication and CPS.

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	0.084	1	0.084	0.277	0.599 ^b
	Residual	104.241	342	0.305		
	Total	104.326	343			

a. Dependent Variable: CPS, b. Predictors: (Constant), Wheel pattern of communication. Source: Computed Data, 2024.

Table 6 described the variable to be statistically significant as the model obtain-

able in the sig column states. It reveals the strength of the contributions of the independent variable (Wheel pattern of communication) to the dependent variable (CPS). The Table revealed that wheel pattern of communication (0.599) is of positive significance in the model. With this result, the null hypothesis is rejected and the study accept the alternate hypothesis, that is Wheel pattern of communication has significant influence on the success of construction projects in North Central, Nigeria.

Table 6. Coefficients^a of wheel pattern of communication and CPS.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	4.658	0.171		27.258	0.000
¹ Wheel pattern of comm	-0.021	0.041	-.028	-0.526	0.599

a. Dependent Variable: CPS. Source: Computed Data, 2024.

H₀₃: Circle pattern of communication has no significant impact on construction project success in North Central, Nigeria.

The model synopsis in **Table 7** shows how much of the variance of the dependent variable (CPS) is explained by the model. In this case the adjusted R square is 0.003 if expressed by a percentage will be 3%. This implies that the model explains 3% of the variance in the CPS.

Table 7. Model summary of circle pattern of communication and CPS.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.020 ^a	0.000	-0.003	0.552	0.000	0.132	1	342	0.717

a. Predictors: (Constant), Circle pattern of communication. Source: Computed Data, 2024.

Table 8 shows the ANOVA assessment of the statistical significance (0.717). The F-value for the model was obtained by dividing the regression mean square (0.040) by the residual mean square (0.305). The F-value for the model is equal to 0.132.

Table 8. ANOVA^a of circle pattern of communication and CPS.

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	0.040	1	0.040	0.132	0.717 ^b
1 Residual	104.285	342	0.305		
Total	104.326	343			

a. Dependent Variable: CPS, b. Predictors: (Constant), Circle pattern of communication. Source: Computed Data, 2024.

Table 9 described the variable that is statistically significant in the model ob-

tainable under the sig column in the Table; it reveals the strength of the contributions of the independent variable (circle pattern of communication) to the dependent variable (CPS). The Table revealed that circle pattern of communication (0.717) made significant contributions to the model. With this result, the null hypothesis is rejected and the study accept the alternate hypothesis, that is circle pattern of communication has significant impact on construction project success in North Central, Nigeria.

Table 9. Coefficients^a of circle pattern of communication and CPS.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.667	0.269		17.332	0.000
¹ Circle pattern of comm	-0.022	0.060	-0.020	-0.363	0.717

a. Dependent Variable: CPS. Source: Computed Data, 2024.

7. Discussion

The three hypotheses tested revealed significant results that shows that communication pattern have bearing on the construction project success in the northcentral, Nigeria. The first hypothesis found that chain pattern communication has significant impact on construction project success in the geopolitical zone of Nigeria. This finding supports [Shonubi and Akintaro \(2016\)](#) results from the study which examined the impact of effective communication patterns on organizational performance. The research findings affirmed that chain communication pattern encourages clarity of ideas before communication which impact project timely completion as errors are reduced to the barest level. The findings [Inedegbor et al., \(2012\)](#) also agrees with the current finding as it established that effective chain communication pattern contributes to organizational performance.

The second hypothesis established that wheel pattern communication had significant influence of the construction project success. This supports the views of [Ramos \(2012\)](#) and [Lunenburg \(2011\)](#). At the instance of [Lunenburg \(2011\)](#) was a position that wheel structures improves effective communication within a group of persons. This suggests that project team can only achieve success through the adoption of this pattern which encourages a two-tier flow of information. Also, this finding agrees with the outcome of [Ramos \(2012\)](#) study which revealed that the wheel pattern is effective in handling issues among employees. This affirmed the place of wheel pattern of communication towards construction project success.

The last hypothesis tested revealed that circle pattern of communication had significant impact on the construction project success. This is evident in the level of project quality as well as timely completion of projects. The finding suggests that team work at sites have been made possible through project teams interaction which aided connections and team members sense of involvement. This position

corroborates [Otieno et al. \(2015\)](#) study which found that circle communication pattern promotes team members' commitment, and networks which are germane to project success. Also, the finding agrees with the view of [Akinbode et al., \(2024\)](#) that circle pattern of communication promotes a collaborative communication required to achieve construction project success. Therefore, this hypothesis support selected previous studies reviewed.

8. Conclusion and Recommendations

The study examined communication pattern as the determinant of construction project success in Nigeria. The three communications patterns were established to determine construction project success in the north central, Nigeria. This study has clearly revealed that information flow contributes to construction projects as chain pattern communications encourage timely dissemination and receipt of information among project teams. This act is required in construction project to achieve both quality and timely completion of projects because efficient passage of information eliminates delays and forestall possible accidents at project sites. Also, wheel pattern of communication eliminates distortion of information based on the premise that each subordinate receives instruction from an end with expectations within the project hierarchy. With this pattern, coordination of projects is made possible and chances of attaining construction projects success have been made possible. Finally, the circle pattern of communication was found to have promoted shared leadership and ownership of tests in projects. This made individuals unique and noted for responsibilities within projects in pursuant of project success. On the following grounds, projects timely completion to specifications have been made possible.

From the study's findings and conclusion, the three communication patterns should be jointly adopted in construction project to attain desired success. By understanding and adapting the three communication patterns, project-related information will flow seamlessly across project stakeholders. Specifically,

Chain pattern of communication is recommended to encourage flow of information from top to bottom and in this regard, confusion and duplications of efforts are eliminated thereby fasttracking construction project success.

Wheel pattern of communication encourages distinct relationship between subordinates and their manager making interaction possible. With this centralization, projects can be easily achieved. Therefore, the option of communication design becomes germane to project success.

Circle communication pattern is recommended to promote collaboration among project team members which will ensure active listening, purposeful speaking, and mindful actions within project phases towards completion.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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