

An Analysis of Miscommunication Factors Affecting Time Delays and Quality Degradation in Construction Projects in Makassar City

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ABSTRACT

The construction sector is vital driver of national development, particularly in Indonesia. However, many construction projects in Makassar City still face challenges such as schedule delays and declining quality. Miscommunication among project stakeholders is a key contributor to these issues. This study aims to identify and analyze the miscommunication factors that affect the project time and quality performance in Makassar City. A descriptive quantitative approach was employed, using questionnaires distributed to 30 respondents involved in building projects. The data were tested for reliability and analyzed using the Relative Importance Index (RII) to rank the influence of each factor. The findings classify the miscommunication factors into four categories: (1) organizational and managerial aspects, (2) project-related information, (3) professional behavior and culture, and (4) technological and methodological aspects. Insufficient project planning (RII = 0.93) was identified as the main cause of delays, while limited professional skill development (RII = 0.95) emerged as the dominant factor affecting quality. These results underscore the importance of the effective communication management in improving construction project performance and provide practical insights for stakeholders to enhance project management practices.

Keywords-miscommunication; time delays; project quality; construction management

I. INTRODUCTION

The construction sector plays a significant role in driving economic progress, both within Indonesia and worldwide. In 2024, the Indonesian government allocated IDR 423.4 trillion for infrastructure development, funding strategic projects, such as the Trans-Sumatra toll road and the National Capital City (NCC) project, to enhance the connectivity between regions and stimulate the national economic growth [1, 2]. As infrastructure demands increase due to population growth and social dynamics, the construction projects have become more complex, requiring effective management of resources, schedules, and quality to meet the project objectives [3]. According to the Project Management Institute (PMI), project management includes ten core knowledge areas, with communication and stakeholder management being critical to the project success [4].

Despite these improvements, construction projects still encounter recurring challenges, such as schedule delays, inefficient use of resources, and variations in quality outcomes. One of the most critical yet often underestimated challenges is the miscommunication among stakeholders. Ineffective or delayed information exchange can directly lead to project delays, cost overruns, and quality degradation. A study in Malaysia identified communication as one of the nine principal high-risk factors affecting the project performance, alongside time, cost, and quality [5]. Similarly, research has shown that external factors, such as poor communication, can cause significant deviations in project timelines and budgets [6]. According to the PMI, project managers spend almost 90% of their time engaging in communication with stakeholders, while over 40% of field workers identify miscommunication as a major impediment to achieving project goals [4].

In developing urban areas, such as Makassar City, these communication challenges are particularly evident. Construction projects in Makassar aim to improve infrastructure, boost the local economy, and create employment opportunities. However, many projects—including high-profile building and public infrastructure works—still experience setbacks due to the miscommunication among stakeholders. Nearly 67% of the delays in Makassar's construction projects have been attributed to communication failures [7] and factors, such as human resource quality, managerial capability, and the effectiveness of internal and external communication, have been shown to significantly influence the project outcomes [8]. Effective stakeholder engagement is also vital in fostering transparency and ownership over project results. Consistent with the findings of [9], active collaboration among stakeholders has been proven to enhance the project performance and improve community satisfaction.

International literature supports these observations. In Saudi Arabia authors in [1] found that miscommunication significantly hinders project time management. In the United States, authors in [10] identified strong correlations between poor communication and material quality degradation. Miscommunication is also linked to increased safety risks [11], conflicts among stakeholders [12], and costly rework [1]. Contributing factors include language and cultural differences, unclear organizational structures, the absence of effective communication tools, and limited interpersonal communication skills [12, 13]. As noted in [12], effective communication management involves planning, executing, monitoring, and distributing project-related information to ensure that decisions are made in a timely and informed manner.

However, although several international studies have investigated the communication issues in construction projects, most research has focused on narrow aspects, such as safety, material quality, or technical coordination, or has examined projects in different geographic contexts, such as Saudi Arabia [1] and the United States [10]. Few studies have empirically investigated the simultaneous impact of miscommunication factors on both the schedule delays and quality degradation within developing urban areas—particularly in Makassar City. This study, therefore, provides novel localized evidence to address this gap, highlighting specific challenges related to human resources, managerial capacity, and stakeholder interactions in Indonesian urban construction projects. By comparing these findings with international research, this study clarifies both the similarities and contextual differences in miscommunication patterns and their effects, thereby offering academic contributions as well as practical guidance for improving the project outcomes in comparable settings.

Accordingly, this study seeks to (i) identify the primary miscommunication factors that contribute to schedule delays and quality issues in building construction projects in Makassar City, and (ii) examine the extent of their impact. The contribution of this research lies in its dual focus on the time and quality impacts of miscommunication, its provision of empirical evidence from Indonesia (a region underrepresented in the global construction management literature), and its practical relevance for contractors, project managers, and

policymakers. The findings are expected to broaden the literature on non-technical factors in construction management and to offer practical recommendations for improving communication practices and enhancing the project outcomes in similar urban environments.

II. METHODOLOGY

A. Research Framework

This study utilized a descriptive quantitative method to examine the factors that cause miscommunication, which subsequently result in project schedule delays and a decline in construction quality in Makassar City. The research was conducted in several stages, including variable identification, primary and secondary data collection, and quantitative analysis using reliability tests and the RII method. The detailed research questions, strategies, and expected outcomes are outlined in Table I.

Table I summarizes the research questions alongside their strategies and anticipated outcomes. The first question focused on identifying the miscommunication factors which affect project delays and quality issues in Makassar City, addressed through a literature review and a structured questionnaire, with data analyzed using Cronbach's Alpha. The second question investigated the extent of these factors' influence by employing the RII.

B. Data Collection

Data were collected using questionnaires given to construction professionals engaged in building projects across Makassar City, supplemented by secondary sources, such as literature reviews, scientific journals, prior research, and project documentation.

C. Population and Sample

The research population comprised building construction projects located within Makassar City. A purposive sampling technique was applied, resulting in the selection of 30 respondents. The respondents were chosen based on having a minimum of two years of relevant work experience and at least a diploma (D4) or bachelor's degree (S1) in engineering. The respondents comprised key construction stakeholders, including project owners, managers, contractors, supervising consultants, and material suppliers.

D. Data Analysis

1) Reliability Test

An instrument is deemed reliable when it consistently generates measurements that reflect actual conditions. The reliability of the questionnaire was assessed using Cronbach's Alpha, with values above 0.6 indicating acceptable internal consistency [14].

2) Relative Importance Index Analysis

The RII was employed to rank the miscommunication factors based on their perceived impact on project delays and quality issues in construction.

TABLE I. RESEARCH OPERATIONAL FRAMEWORK

Research questions	Strategies	Expected outcomes
What are the factors that cause miscommunication related to time delays and quality degradation in construction projects in Makassar City?	i) Data Collection: Literature review and Questionnaire survey ii) Data Analysis: Cronbach's Alpha Reliability Test	Identification of factors causing miscommunication related to time delays and quality degradation in construction projects
What is the level of influence of the miscommunication factors on time delays and project quality?	i) Data Collection: Result from RQ1 ii) Data Analysis: RII Analysis	Analysis of the degree of influence of miscommunication factors on time delays and project quality

A five-point Likert scale was used to assess the degree of influence of each factor, with weights assigned to responses and RII values calculated using:

$$RII (\%) = \frac{5(n_5)+4(n_4)+3(n_3)+2(n_2)+n_1}{W \times (n_5+n_4+n_3+n_2+n_1)} \quad (1)$$

where n_1, n_2, \dots, n_5 are the number of respondents selecting each scale point and W is the highest scale value (in this case, 5).

III. RESULTS AND DISCUSSION

A. Identification of Miscommunication Factors Contributing to Project Time Delays and Quality Degradation

Based on the literature review, several factors contributing to miscommunication, which in turn lead to time delays and deterioration in construction project quality, were identified. These factors are presented in Table II.

TABLE II. FACTORS CONTRIBUTING TO MISCOMMUNICATION IN CONSTRUCTION PROJECTS

Code	Aspects	References
	Organization and Management	[1, 9, 14]
X1.1	Lack of effective communication	[1, 9, 14]
X1.2	Inadequate project planning	[1, 9, 14]
X1.3	Organizational structures hindering communication	[1, 9]
	Project Information	[1, 9, 14]
X2.1	Unclear or poorly organized documentation	[1, 9]
X2.2	Difficulty in accessing project information	[1], [14]
X2.3	False or misleading information	[1, 9, 14]
	Professional Behavior and Culture	[1, 9, 14]
X3.1	Language barriers	[1, 9, 14]
X3.2	Limited professional skills' development	[1, 9]
X3.3	Lack of confidence among team members	[1]
	Technology and Methods	[1, 9, 14]
X4.1	Inadequate technical skills	[1, 9]
X4.2	Staff qualifications not aligned with project needs	[1, 9]
X4.3	Absence of clear operational procedures	[1, 9, 14]

Table II outlines the key miscommunication factors identified from the literature, grouped under organizational, informational, behavioral, and technological aspects. This classification forms the basis of the questionnaire used in this study and has been theoretically validated using multiple studies.

B. Reliability Test

To guarantee consistency in subsequent measurements, the reliability test checked the questionnaire's internal consistency. If an item's Cronbach's Alpha value was higher than 0.6, it was

deemed dependable. The results of the reliability test for the factors affecting the time delays are presented in Table III.

TABLE III. RELIABILITY TEST FOR FACTORS AFFECTING TIME DELAYS

Code	Cronbach's Alpha
X1	Organization and Management
X1.1	0.71
X1.2	0.70
X1.3	0.70
X2	Project Information
X2.1	0.70
X2.2	0.71
X2.3	0.71
X3	Professional Behavior and Culture
X3.1	0.72
X3.2	0.71
X3.3	0.70
X4	Technology and Methods
X4.1	0.71
X4.2	0.71
X4.3	0.71

As shown in Table III, there was trustworthy internal consistency across the board, with Cronbach's Alpha values being greater than 0.6 for every variable.

The reliability test results for the factors influencing the project quality are outlined in Table IV. These results confirm that all measurement items have acceptable reliability levels, indicating consistency in the responses collected.

TABLE IV. RELIABILITY TEST FOR FACTORS AFFECTING PROJECT QUALITY

Code	Cronbach's Alpha
X1	Organization and Management
X1.1	0.72
X1.2	0.73
X1.3	0.74
X2	Project Information
X2.1	0.73
X2.2	0.72
X2.3	0.73
X3	Professional Behavior and Culture
X3.1	0.75
X3.2	0.74
X3.3	0.70
X4	Technology and Methods
X4.1	0.74
X4.2	0.75
X4.3	0.74

Similarly, Table IV shows that all items were reliable, with Cronbach's Alpha values above 0.6, specifically averaging at 0.75.

C. Relative Importance Index Analysis Results

An example of the RII calculation for the sub-variable X1.1 is:

$$RII (\%) = \frac{5(n5)+4(n4)+3(n3)+2(n2)+n1}{W \times (n5+n4+n3+n2+n1)}$$

$$RII (\%) = \frac{5(11)+4(15)+3(4)+2(0)+0}{5 \times (11+15+4+0+0)}$$

$$RII (\%) = 0.85$$

The results of the RII analysis for the factors affecting the project time delays are presented in Figure 1. Figure 1 illustrates the RII for twelve sub-factors of miscommunication that influence the project schedule delays, ranked from the highest to the lowest. In addition to schedule delays, the analysis also examined the impact of the miscommunication factors on project quality. The RII results for these factors are depicted in Figure 2. Figure 2 also shows the RII for twelve sub-factors of miscommunication affecting project quality, ranked from the highest to the lowest.

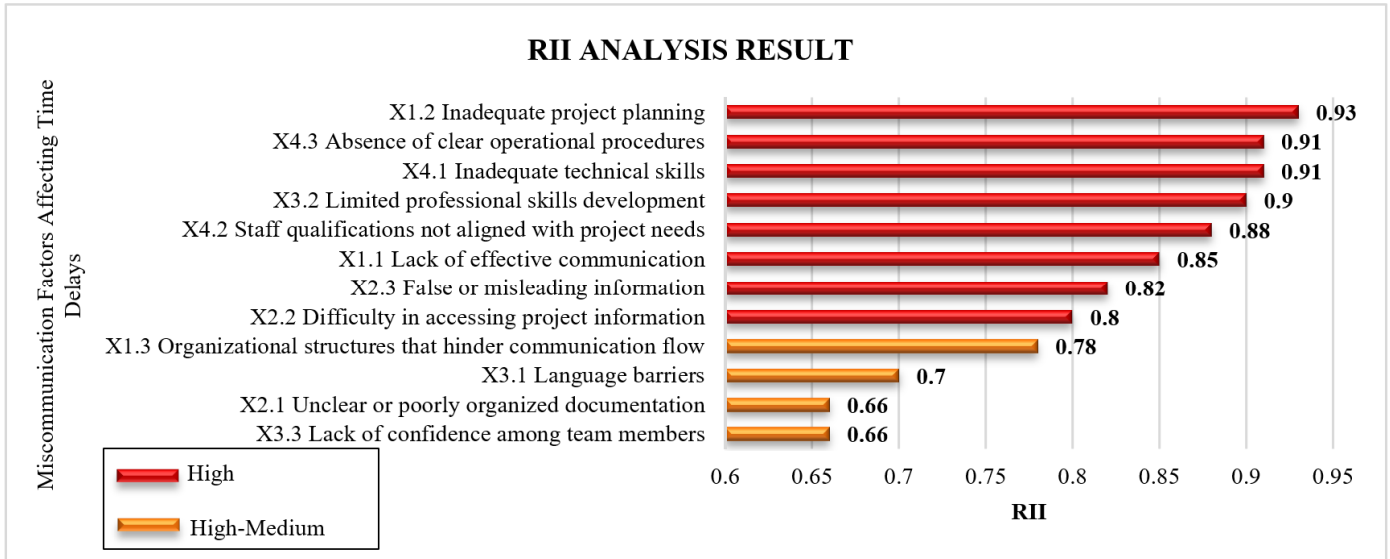


Fig. 1. Ranking of miscommunication factors affecting time delays in construction projects.

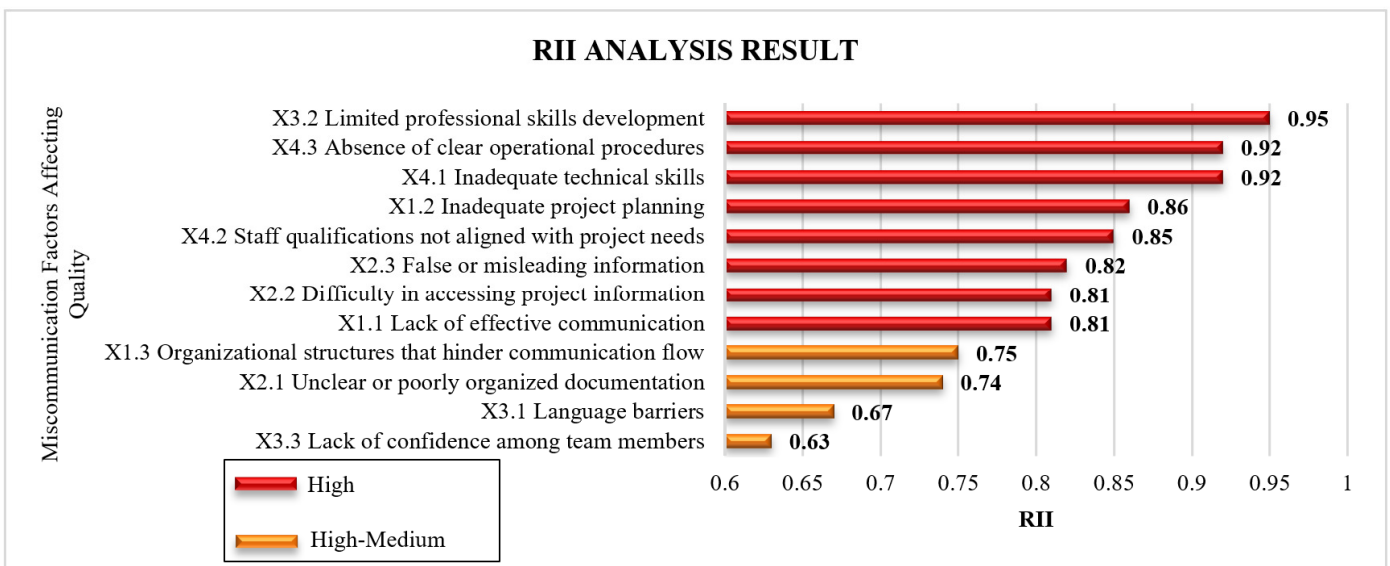


Fig. 2. Ranking of miscommunication factors affecting quality degradation in construction projects.

D. Discussion

The findings reveal that insufficient project planning (X1.2) ranks as the most significant factor causing schedule delays in construction projects in Makassar City (RII = 0.93). This result aligns with the findings in [13], where it was reported that unclear planning can lead to miscommunication and scheduling conflicts, and the findings in [7], where weak planning processes were identified as a major source of communication breakdowns locally.

Similarly, the absence of clear operational procedures (X4.3) and inadequate technical skills (X4.1), both with high RII values (0.91), suggest that the unstructured internal processes and limited technical capacity significantly increase the risk of miscommunication and delays. These observations are consistent with the findings in [12], where it was emphasized that a lack of clear work guidelines and technical competence hinders the smooth information flow and timely task completion.

Regarding the project quality, limited professional skills' development (X3.2) emerged as the most influential factor causing quality degradation (RII = 0.95). This finding is consistent with the observations in [9], where it was noted that low workforce competence often leads to rework and non-compliance with specifications. Additionally, unclear procedures and insufficient technical skills exacerbate the quality issues, while mismatched staff qualifications (X4.2) and ineffective communication (X1.1) highlight the importance of aligning human resources with project requirements and establishing clear communication channels, as proposed in the PMBOK Guide [4].

External factors, such as inaccurate or misleading information (X2.3) and difficulty in accessing project data (X2.2), further underscore the need to enhance the project information systems to ensure timely and accurate data availability. Interpersonal factors, including language barriers (X3.1) and lack of confidence (X3.3), indicate that the cultural and relational considerations are important, particularly in diverse project teams.

Overall, these findings demonstrate that effective communication management is critical not only to prevent the schedule delays, but also to maintain quality standards. Practical measures include strengthening project planning and SOPs, investing in training to improve technical and communication skills, and upgrading document control and information access systems to minimize misunderstandings on-site. These results provide empirical support for prioritizing communication management in urban construction projects and align with existing literature on non-technical risk factors.

IV. CONCLUSION

The current study identified key miscommunication factors contributing to schedule delays and quality issues in building construction projects in Makassar City, categorized into four groups: Organization and Management, Project information, Professional behavior and Culture, and Technology and Methods. The most influential factors were Inadequate project

planning (X1.2) for schedule delays and Limitations in professional skills' development (X3.2) for quality degradation.

Based on these findings, project managers are encouraged to strengthen the planning processes, develop clear operational procedures, enhance professional development, and improve communication channels to mitigate miscommunication risks. Future projects should ensure alignment of staff qualifications with project requirements and maintain accurate, timely information systems.

This study is limited to building projects in Makassar City and relies on questionnaire data, which may not fully capture the dynamic site conditions or broader regional factors. Further research could expand to other types of construction projects, different regions, and incorporate qualitative methods, such as interviews or case studies to explore the miscommunication factors in greater depth.

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