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Examining the Effects of Culture on Project Performance: A Case Study of Road Infrastructure Development Projects in Lusaka-District

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Abstract

Infrastructure development plays an important role in Zambia's socio-economic growth, particularly within the rapidly expanding urban landscape of Lusaka District. Despite significant investments in road infrastructure by both government and development partners, many projects continue to face persistent challenges including cost overruns, delays, miscommunication, and stakeholder conflicts. While technical and financial constraints are often cited as primary causes, emerging research indicates that cultural factors exert a profound influence on project success, yet this remains critically understudied in the Zambian context. This study therefore sought to investigate the influence of culture on project performance in road infrastructure projects within Lusaka District, guided by three key objectives: to establish the relationship between culture and project performance, to assess how cultural factors such as communication and leadership affect road project success, and to ascertain how cultural awareness can be incorporated into project management to enhance performance.

The research employed a mixed-methods design, collecting quantitative data through structured questionnaires from 100 respondents comprising project managers, engineers, contractors, government officials, and community representatives. Quantitative analysis was conducted using SPSS, employing descriptive statistics and Chi-square tests, while qualitative data from open-ended responses underwent thematic analysis. The findings reveal a complex cultural landscape where perceptions are divided: 48% of respondents acknowledged culture's influence on performance while 52% did not, indicating a significant awareness gap. Cultural challenges most substantially impacted conflict management (25%) and stakeholder participation (23%), with communication barriers manifesting primarily as limited feedback (32%) and lack of consultation (32%). Leadership effectiveness was rated as not effective by 36% of respondents, though authoritative leadership was deemed most effective (41%) in the high power distance cultural context.

Regarding cultural awareness integration, a slight majority (52%) agreed it improves outcomes, with demonstrated benefits including improved collaboration (26%), leadership/decision-making improvements (24%), and reduced delays (22%). However, implementation remains inconsistent, with exactly 50% of respondents having participated in projects incorporating cultural awareness strategies. Chi-square analysis revealed no significant associations between demographic factors and perceptions of cultural influence ($p > 0.05$), suggesting these challenges affect all demographic groups equally and require systemic rather than targeted solutions. The study concludes that culture, communication, and leadership are interdependent factors that collectively determine project success. It recommends institutionalizing cultural assessment frameworks, promoting culturally sensitive leadership training, and ensuring continuous stakeholder dialogue that respects local norms and values to enhance project delivery and sustainability in Lusaka's multicultural project environment.

Keywords: Culture, Project Performance, Road Infrastructure, Communication, Leadership, Cultural Awareness, Lusaka District

1. Introduction

1.1 Background

Infrastructure development plays a central role in driving social and economic progress globally. According to the World Bank (2019) [35], well-planned infrastructure such as roads, energy, water, and communication systems is essential for economic

competitiveness and inclusive growth. Hofstede (2001) asserts that successful project implementation often depends on more than technical expertise; it requires attention to the cultural dynamics that shape communication, leadership, and team behavior. In multicultural environments, differences in cultural values can either enhance innovation or become sources of misunderstanding and conflict. Thomas and Peterson (2015) [31] add that in global project environments, ignoring cultural differences may lead to poor collaboration, stakeholder resistance, and ultimately, project failure.

In the African context, road infrastructure development is recognized as a key pillar of regional integration and economic transformation. The African Union's Agenda 2063 emphasizes the need for cross-border road infrastructure to support trade and connectivity. However, Aigbavboa and Mukuka (2014) [1] argue that cultural misalignments among project stakeholders have contributed to project delays and cost overruns in many African countries. The Project Management Institute (2017) [27] also notes that imported project management models are often not adapted to local realities, leading to low community participation and implementation challenges. Böhme and Glisovic (2020) [5] assert that Western approaches tend to emphasize efficiency and individual responsibility, whereas many African societies value collective decision-making and respect for traditional authority. This mismatch can result in a lack of ownership and weak stakeholder engagement.

In Zambia, infrastructure development has become a national priority, particularly in rapidly growing urban centers like Lusaka. Phiri and Chileshe (2013) [25] state that the government has invested in roads, housing, schools, and healthcare facilities to address service delivery gaps and promote economic growth. However, Muleya and Kunda (2018) [19] argue that despite these investments, many projects face performance issues such as delays, cost escalations, and substandard work. These problems are often blamed on funding or technical constraints, but cultural dynamics are an equally important and often overlooked factor. Chipulu *et al*. (2014) [9] observe that Lusaka's road infrastructure teams are composed of individuals from diverse ethnic and linguistic backgrounds, which can affect teamwork, supervision, and stakeholder relations. Jackson (2002) [16] adds that traditional norms regarding leadership, communication, and time management often clash with formal project procedures, making it difficult to ensure smooth implementation.

Understanding the influence of culture on project performance requires a nuanced examination of how cultural dynamics permeate every aspect of project execution. Cultural values shape not only individual behaviors but also collective decision-making processes within project teams and stakeholder communities. As noted by Hofstede (2001), cultural dimensions such as power distance, individualism vs. collectivism, and uncertainty avoidance significantly impact how stakeholders perceive authority, share information, and handle risk in project environments. In the context of road infrastructure projects in Lusaka, these cultural dimensions manifest in diverse ways, influencing project timelines, budget adherence, and community acceptance of project outcomes.

Moreover, cultural misalignments often exacerbate existing project challenges. Aigbavboa and Mukuka (2014) [1] highlight instances where the imposition of foreign project management methodologies disregards local cultural norms, leading to distrust among local stakeholders and resistance to project objectives. This friction not only complicates day-to-day operations but also undermines the sustainability of infrastructure investments in Zambia. By integrating cultural sensitivity into project planning and implementation strategies, stakeholders can foster greater collaboration, enhance local ownership, and mitigate the risk of delays and cost overruns commonly associated with cross-cultural project environments.

Despite growing recognition of these challenges, there is limited empirical research focusing specifically on how culture affectss road infrastructure project performance in the Zambian context. Thomas and Peterson (2015) [31] note that while theoretical frameworks like Hofstede's are useful, more context-specific studies are needed to inform effective project management practices. This study, therefore, seeks to explore how cultural factors such as communication styles, leadership expectations, and stakeholder engagement norms affect the planning and execution of infrastructure development projects in Lusaka. By addressing this gap, the research aims to contribute to more culturally responsive and effective project management strategies in Zambia.

1.2 Objectives of the Study

To examining the effects of culture on project performance. a case study of road infrastructure development projects in lusaka-district.

1.2.1 Specific Objectives

1. To Establish the relationship between culture and Project performance.
2. To assess how cultural factors like communication and leadership affect road project success in Lusaka District.
3. To ascertain ways to incorporate cultural awareness into project management to improve road project outcomes in Lusaka District.

1.3 Research Questions

1. What is the relationship between culture and project performance in road infrastructure projects in Lusaka District?
2. How do cultural factors such as communication and leadership affects the success of road projects in Lusaka District?
3. In what ways can cultural awareness be incorporated into project management to improve road project outcomes in Lusaka District?

1.4 Theoretical Framework

This study is guided by two theories: Hofstede's Cultural Dimensions Theory and Stakeholder Theory. These theories help explain how cultural values and stakeholder interactions influence the performance of road infrastructure projects in Lusaka, Zambia.

1.4.1 Hofstede's Cultural Dimensions Theory

Hofstede's theory explains how national and organizational cultures shape behaviour in project environments. The six dimensions Power Distance, Individualism–Collectivism, Uncertainty Avoidance, Masculinity–Femininity, Long-/Short-Term Orientation, and Indulgence–Restraint highlight differences that affect leadership, communication, motivation, and conflict resolution (Hofstede, 2001).

In Zambia's high Power Distance context, hierarchical decision-making may limit upward communication, reducing innovation and timely problem detection (Chipulu *et al*., 2014) [9]. Collectivism promotes team cohesion but may slow decision-making or discourage dissenting views (Trompenaars & Hampden-Turner, 2012) [33]. High Uncertainty Avoidance favours structured procedures but may resist flexible approaches during project challenges.

Other dimensions also influence project culture. Masculinity–Femininity affects competitiveness and collaboration, while Long-Term Orientation supports sustainability in infrastructure planning. Indulgence–Restraint shapes communication openness; in more restrained settings, team members may hesitate to voice concerns. Understanding these cultural factors helps managers foster inclusive environments and improve project performance (Schein, 2010) [28].

1.4.2 Stakeholder Theory

Stakeholder Theory (Freeman, 1984) [13] emphasizes that successful project management requires considering the interests of all affected groups, including government agencies, contractors, communities, and traditional leaders. In Lusaka's road infrastructure projects, failure to engage stakeholders especially local residents can result in resistance, delays, or mistrust (Aigbavboa & Mukuka, 2014) [1].

The theory promotes early and transparent engagement, respect for cultural hierarchies, and communication approaches suited to stakeholder preferences (Trompenaars & Hampden-Turner, 2012) [33]. It also stresses balancing competing interests and creating shared social value, not just achieving technical or financial goals. Political influence further shapes stakeholder dynamics, making it essential to recognize both formal and informal power structures (Phiri & Chileshe, 2013) [25].

Stakeholder salience based on power, legitimacy, and urgency helps managers identify whose concerns should be prioritized (Mitchell *et al*., 1997) [18]. Continuous dialogue and adaptive management are important as stakeholder expectations shift during the project lifecycle (Bourne, 2015) [6]. Overall, Stakeholder Theory complements Hofstede's framework by focusing on relationships beyond the project team and ensuring infrastructure projects are socially responsive and culturally appropriate.

2. Literature Review

2.1 The Relationship Between Culture and Project Performance

Culture is a critical determinant of project performance, shaping communication, leadership, teamwork, and stakeholder engagement. Shared cultural values define perceptions of authority, time, and risk, directly affecting decision-making and project coordination (Hofstede, 2001). Ignoring these differences often results in miscommunication, conflict, and delays, especially in complex infrastructure projects (Thomas & Peterson, 2015) [31].

In global and African contexts, multicultural teams face challenges from differing work ethics, time orientations, and traditional governance systems (Aigbavboa & Thwala, 2015; Owusu-Manu *et al*., 2019) [2, 23]. In Lusaka specifically, clashes between local relational values and external top-down management styles have led to mistrust, coordination failures, and delays (Muleya & Kunda, 2018; Chipulu *et al*., 2014) [19, 9].

Cultural norms also define project success differently; local communities may prioritize social impact over conventional metrics like cost and time (Ahsan & Gunawan, 2010) [3]. High power distance in Zambia can suppress upward communication, while collectivist conflict resolution prefers mediation over confrontation (Hofstede, 2001; Trompenaars & Hampden-Turner, 2012 [33]).

To navigate these challenges, cultural intelligence training, locally-aligned communication, and inclusive stakeholder engagement are essential (Earley & Ang, 2003; Phiri & Chileshe, 2013) [12, 25]. Ultimately, sustainable success requires aligning technical objectives with local cultural expectations respecting traditions, involving community leaders, and maintaining dialogue (Schein, 2010) [28]. Ignoring culture invites resistance and inefficiency, whereas integrating it fosters cooperation, efficiency, and long-term sustainability.

2.2 How Cultural Factors Like Communication and Leadership Affect Road Project Success in Lusaka District

Cultural factors strongly influence the performance of road projects in Lusaka. Communication styles often differ between local workers and foreign contractors. Zambia's indirect and relational communication can clash with the direct style used by many external project managers, leading to misunderstandings, poor feedback flow, and avoidable delays (Hofstede, 2001). Language barriers also contribute to mistakes since many workers better understand local languages than English. Using translators, simplified instructions, and community meetings improves clarity and participation (Chipulu *et al*., 2014) [9].

Leadership styles are equally important. Zambia's high-power-distance culture values respectful, relationship-oriented leaders. When supervisors use rigid, top-down approaches without cultural sensitivity, workers become demotivated, resulting in low morale and slow progress (Muleya & Kunda, 2018) [19]. Leaders who build trust, communicate respectfully, and engage workers collaboratively achieve better cooperation and productivity.

Stakeholder engagement must also consider local cultural expectations. Excluding traditional leaders or failing to follow community protocols often leads to conflict, land disputes, or project resistance (Owusu-Manu *et al*., 2019) [23]. Inclusive consultations, transparent communication about project activities, and attention to local customs help strengthen community support.

Overall, effective communication, culturally aware leadership, and respectful stakeholder engagement are essential for successful road project delivery in Lusaka. Projects that ignore cultural dynamics face delays, misunderstandings, and poor community relations, while those that adapt to local norms experience smoother and more sustainable outcomes.

2.3 Incorporating Cultural Awareness into Project Management to Improve Road Project Outcomes in Lusaka District

In Lusaka's diverse and informal context, integrating cultural awareness into road projects is crucial for improving cooperation, reducing conflict, and strengthening community acceptance. Effective implementation involves several key strategies: conducting culturally sensitive

stakeholder analysis to identify both formal and informal leaders; engaging these stakeholders early; communicating in local languages with respect for cultural norms; incorporating traditional leaders into project governance; respecting cultural events in scheduling; providing cultural intelligence training for project teams; designing culturally appropriate feedback systems; and integrating local knowledge into project designs.

Furthermore, monitoring and evaluation (M&E) must be culturally relevant to ensure projects meet both technical standards and social values. This requires using participatory methods (like focus groups and storytelling), involving traditional leaders to add credibility, respecting cultural calendars, and establishing safe, culturally sensitive grievance mechanisms. Ultimately, embedding cultural considerations throughout project management and M&E fosters trust, accountability, and long-term project sustainability.

2.4 Personal Critique

Existing literature on culture and project management is largely Western and ill-suited to Lusaka's informal, diverse context. Failures here stem more from cultural mismatches language barriers, leadership clashes, unmet community norms than technical issues. Current models lack proactive cultural integration, leaving managers unprepared. This study fills that gap with context-specific strategies to embed cultural awareness into road projects, ensuring sustainable and community-supported outcomes.

2.5 Establishment of Research Gaps

While culture is acknowledged globally as key to project success, there is limited research on its practical application in Lusaka's road infrastructure projects, which involve diverse ethnic groups, informal settlements, and traditional authority structures. Existing models fail to guide culturally sensitive communication, leadership, and stakeholder engagement, and there is little evidence on the impact of cultural training or local language use on project performance. Research also overlooks the role of culture in sustainability and community acceptance. This study fills these gaps by offering practical, context-specific approaches to culturally responsive project management in Lusaka.

3. Research Design

This study used a mixed-methods design, combining quantitative surveys and qualitative interviews. Surveys captured measurable data on stakeholder perceptions, project performance, and communication patterns, while interviews explored experiences, cultural challenges, and community engagement. This approach provided both breadth and depth, enabling triangulation of data and enhancing the validity and richness of the findings.

3.1 Sampling Technique

The study employed purposive sampling, a non-probability method that allowed the researcher to select participants directly involved in road infrastructure projects. For the quantitative survey, stakeholders such as engineers, contractors, government officials, and community members were targeted to ensure representation of multiple perspectives. For the qualitative component, key informants including project managers, traditional leaders, and site supervisors were selected due to their strategic roles in project execution. This approach ensured access to both institutional insights and community experiences.

3.2 Sample Size

A total of 100 respondents participated in the quantitative survey, representing diverse stakeholder groups across Lusaka District. For qualitative interviews, 20 participants including project managers, local government officials, traditional leaders, and community representatives were engaged to provide in-depth insights. This combination enabled the study to capture general trends as well as detailed narratives, allowing a comprehensive understanding of cultural influences on project performance.

3.3 Techniques for Data Collection

Primary data were collected through structured questionnaires for the survey and semi-structured interviews for the key informants. Observation was also used to capture behaviors and interactions during project activities. Secondary data, including project reports, policy documents, and previous research studies, provided contextual support and allowed for triangulation of findings. This mixed-methods approach ensured comprehensive analysis and strengthened the reliability and validity of the results.

3.4 Instruments for Data Collection

The research instruments included questionnaires, interview guides, participant observation, and the researcher as a human instrument. Questionnaires captured quantifiable data from stakeholders, while interviews and observation provided qualitative insights into cultural practices, communication norms, and leadership expectations. The researcher acted as a human instrument to interpret responses, clarify meanings, and ensure contextual accuracy.

3.5 Questionnaire

A questionnaire was used to collect data from 100 stakeholders. Despite limitations such as potential misinterpretation or bias, questionnaires are cost-effective, convenient, quick, and allow anonymity. They provide measurable data on perceptions, experiences, and stakeholder engagement in road infrastructure projects, facilitating straightforward statistical analysis.

3.6 Participant Observation

Observation was employed to systematically record events, interactions, and behaviors during project activities. This method allowed the researcher to understand group dynamics, verify interview data, and access insights from participants who might be difficult to reach through direct questioning. Care was taken to avoid bias and not influence participants' natural behavior.

3.7 Human Instrument

The researcher acted as a human instrument to interpret, assess, and adapt to the research context. This was crucial for capturing nuanced cultural dynamics and understanding stakeholder interactions, which are often context-dependent and cannot be fully captured by non-human instruments.

3.8 Procedure of Data Collection

Primary data were collected directly from participants through questionnaires, interviews, and observation, tailored to the study's objectives. Secondary data, obtained from

government reports, project documents, and academic sources, supplemented primary data, provided context, and supported triangulation. Together, these sources ensured that the data were accurate, current, and relevant to the study.

3.9 Document Review

Secondary data were collected through document review, including project evaluation reports, government publications, and scholarly articles on culture and project management. This review helped verify primary data, identify trends and gaps, and provide a comprehensive understanding of cultural influences on road infrastructure projects.

3.10 Data Analysis Techniques

Data were organized and analyzed in stages:

Data Preparation and Cleaning: Questionnaires were checked for completeness, coded, and cleaned. Interview responses were transcribed and prepared for thematic analysis.

Data Entry into SPSS: Quantitative data were coded numerically and entered into SPSS for analysis, ensuring accuracy and reliability.

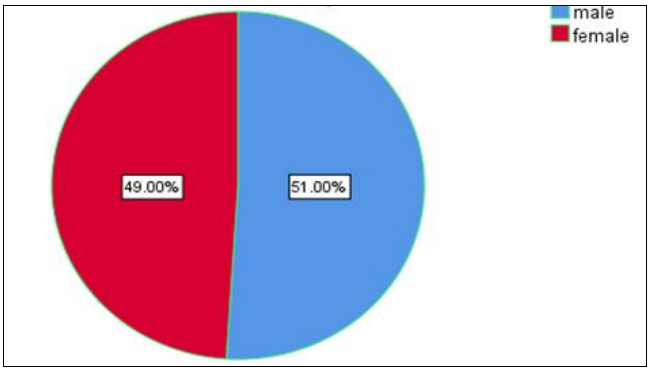
Descriptive and Inferential Analysis: Frequencies, percentages, means, and standard deviations summarized quantitative data. Chi-square tests were used to examine relationships between demographic factors and perceptions of cultural influence.

Qualitative Data Analysis: Interview data were manually analyzed using thematic analysis. Responses were coded into themes and sub-themes aligned with the study objectives, providing in-depth insights into stakeholder perceptions, cultural challenges, and leadership practices.

This structured approach ensured systematic, reliable, and comprehensive analysis of both quantitative and qualitative data, providing actionable insights on the role of culture in Lusaka's road infrastructure project performance.

4. Presentation of Findings

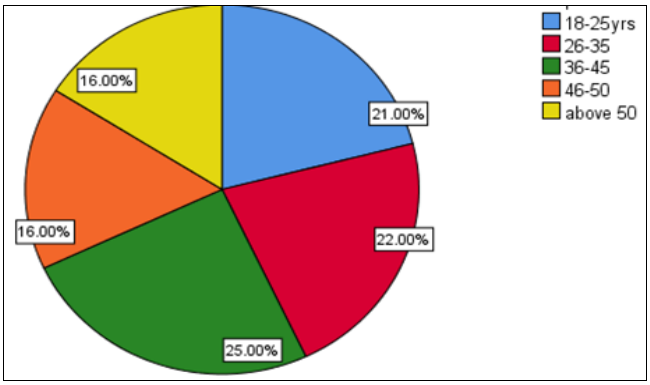
4.1 Presentation of results on background characteristics of the respondents



Source: Primary data, 2025

Fig 1: Sex of respondents

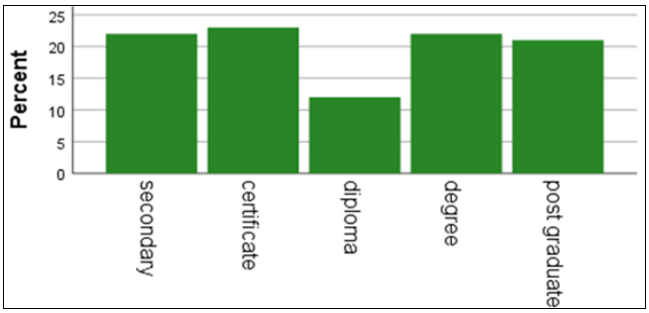
The pie chart shows that the sample was almost evenly split by gender, with 51% male and 49% female respondents. This indicates balanced representation of both sexes, suggesting inclusivity in participation in Lusaka road infrastructure projects.



Source: Primary data, 2025

Fig 2: Age group of respondents

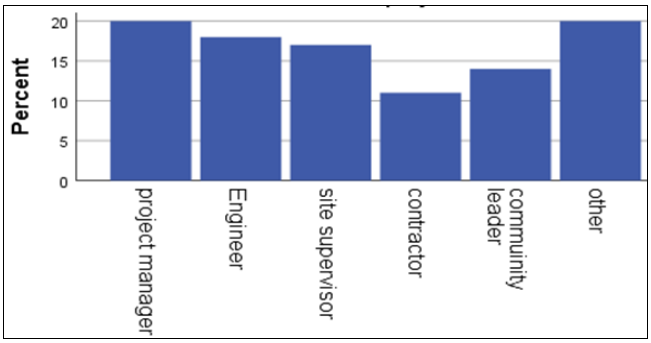
The bar chart illustrates the distribution of respondents' ages. The majority of respondents were aged 36–45 years (25%), followed closely by 26–35 years (22%) and 18–25 years (21%). Fewer respondents were in the older age brackets of 46–50 years and above 50 years (16% each). This suggests a workforce predominantly in the prime working age.



Source: Primary data, 2025

Fig 3: Highest level of education

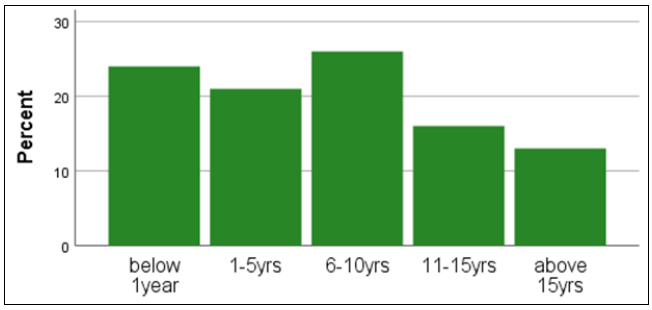
The bar chart shows that most respondents had certificates (23%) or degrees (22%), while secondary education (22%), postgraduate (21%), and diploma holders (12%) were also present. This indicates a broad academic mix with a strong representation of tertiary-educated professionals.



Source: Primary data, 2025

Fig 4: Position held in project

The chart shows that respondents held varied positions including project managers (20%), engineers (18%), site supervisors (17%), contractors (11%), community leaders (14%), and others (20%). This reflects diverse roles and perspectives in the study sample.

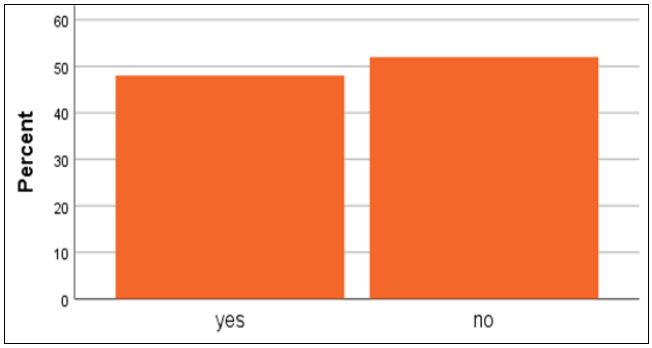


Source: Primary data, 2025

Fig 5: Duration involved in road infrastructure projects

Respondents' experience varied, with the largest group having 6–10 years (26%) of involvement. Below 1 year accounted for 24%, 1–5 years for 21%, 11–15 years for 16%, and above 15 years for 13%. The sample thus included both newcomers and highly experienced professionals.

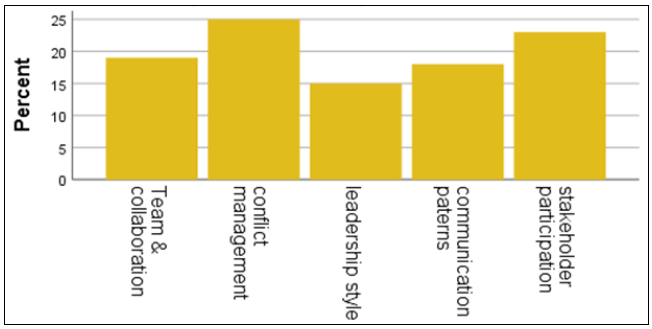
4.2 Results based on Objective One: Culture and Project Performance



Source: Primary data, 2025

Fig 6: Does culture influence performance of road projects?

The bar chart shows that 48% of respondents believed culture influences project performance, while 52% disagreed. This indicates a divided perception among stakeholders regarding the role of culture in project outcomes.



Source: Primary data, 2025

Fig 7: Ways culture affects performance

The bar chart shows that conflict management (25%) and stakeholder participation (23%) were the most cited ways culture affects project performance. Teamwork (19%), communication patterns (18%), and leadership style (15%) were also significant, highlighting multiple channels through which culture impacts projects.

Source: Primary data, 2025

Fig 8: Relationship between cultural values and project delivery

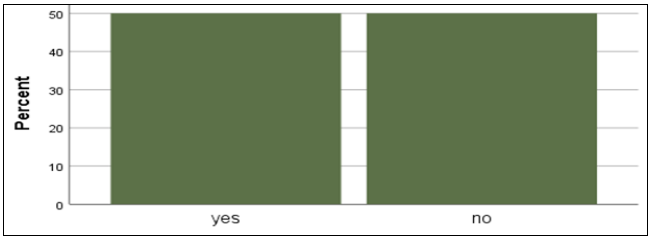
Respondents reported varying relationships between cultural values and project delivery. Weak (28%) and none (27%) were slightly more common than strong (25%) and moderate (20%), suggesting that cultural values influence project outcomes inconsistently across different projects.

Fig 9: How cultural differences affected projects

Theme	Percent (%)
Conflicts due to work attitudes	24
Leadership expectation differences	24
Delays from community practices	22
Communication gaps	17
Language barriers	13
Total	100

Cultural differences were reported to cause conflicts due to work attitudes (24%) and leadership expectation differences (24%). Delays from community practices (22%), communication gaps (17%), and language barriers (13%) were also noted. This highlights the practical challenges of managing cultural diversity on road projects.

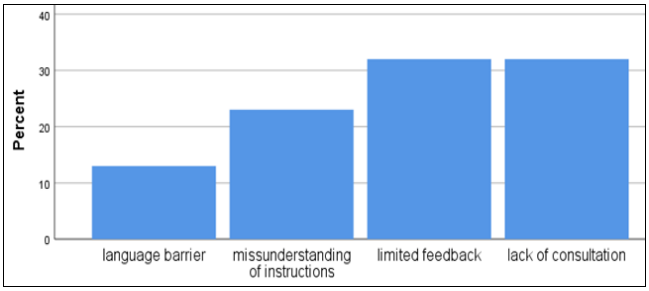
4.3 Results based on Obective Two: Communication and Leadership as Cultural Factors



Source: Primary data, 2025

Fig 10: Do communication styles affect project success

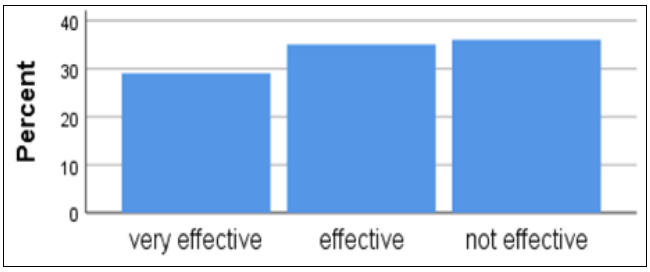
Respondents were evenly split, with 50% indicating that communication styles affect project success and 50% saying no. This demonstrates mixed experiences and perceptions regarding communication in project management.



Source: Primary data, 2025

Fig 11: Communication challenges experienced

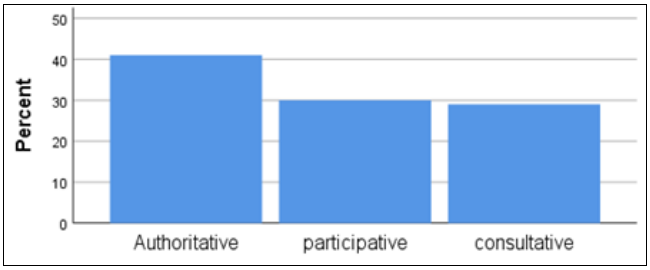
The bar chart shows that limited feedback (32%) and lack of consultation (32%) were the most common challenges, followed by misunderstanding of instructions (23%) and language barriers (13%). Effective communication remains a critical factor for project success.



Source: Primary data, 2025

Fig 12: Effectiveness of leadership approaches

Respondents rated leadership as fairly effective (35%), not effective (36%), and very effective (29%). The data indicates that leadership effectiveness is perceived differently across projects, with a notable proportion of respondents expressing dissatisfaction.



Source: Primary data, 2025

Fig 13: Most effective leadership styles

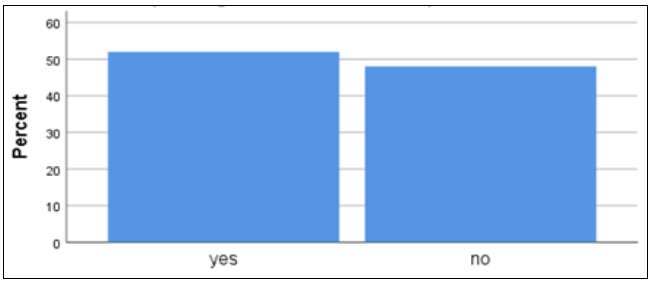
The chart shows that authoritative leadership (41%) was considered most effective, followed by participative (30%) and consultative (29%). This suggests that decisive leadership is valued in Lusaka road projects, though collaborative styles also play a significant role.

Fig 14: How leadership & communication issues affect outcomes

Theme	Frequency	Percent (%)
Strong leadership improves morale	24	24
Misunderstood instructions cause errors	23	23
Enhanced cooperation / teamwork	20	20
Reduced trust due to lack of consultation	17	17
Delays due to poor leadership	16	16
Total	100	100

Strong leadership improving morale (24%) and misunderstood instructions causing errors (23%) were the main issues cited. Enhanced cooperation (20%), reduced trust due to lack of consultation (17%), and delays from poor leadership (16%) were also reported, highlighting the link between leadership, communication, and project performance.

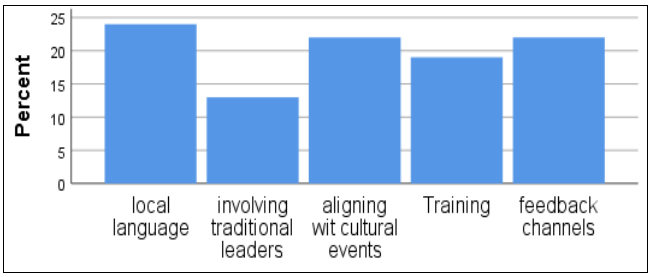
4.4 Results based on Objective Three: Incorporating Cultural Awareness into Project Management



Source: Primary data, 2025

Fig 15: Does incorporating cultural awareness improve outcomes

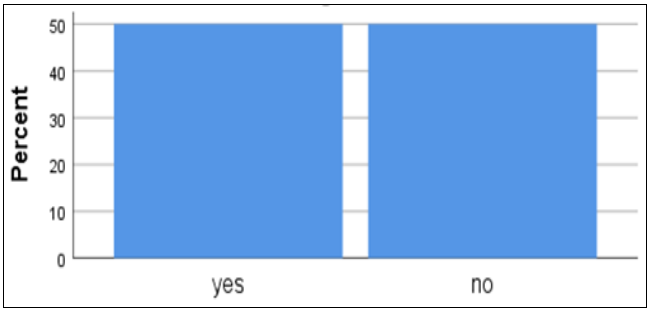
The pie chart shows a slight majority (52%) agreed that cultural awareness improves outcomes, while 48% disagreed. This indicates that cultural awareness is perceived to have a positive, but not universally recognized, impact on project performance.



Source: Primary data, 2025

Fig 16: Strategies that should be prioritized

The chart shows that local languages (24%), aligning with cultural events (22%), feedback channels (22%), training (19%), and involving traditional leaders (13%) were the most recommended strategies. Multiple approaches are considered important for integrating cultural awareness.



Source: Primary data, 2025

Fig 17: Have you participated in a project with cultural awareness strategies

Respondents were evenly split (50% each) between those who had and had not participated in culturally aware projects, indicating that cultural integration is not yet widespread.

Fig 18: How cultural awareness affected project performance

Theme	Frequency	Percent(%)
Improved collaboration	26	26
Reduced delays	22	22
Leadership/decision-making improvements	24	24
Communication clarity / trust	17	17
Reduced conflicts	11	11
Total	100	100

Source: Primary data, 2025

Improved collaboration (26%), leadership/decision-making improvements (24%), reduced delays (22%), communication clarity (17%), and reduced conflicts (11%) were reported. This suggests that cultural awareness positively influences several dimensions of project performance.

Fig 19: Suggestions to improve cultural awareness

Theme	Frequency	Percent (%)
Use of local languages / translation	24	24
Align timelines with cultural events	25	25
Training & capacity building	19	19
Involve traditional leaders / community engagement	19	19
Feedback channels / community forums	13	13
Total	100	100

Source: Primary data, 2025

Respondents suggested aligning timelines with cultural events (25%), using local languages (24%), training (19%), involving traditional leaders (19%), and establishing feedback channels (13%) as key strategies to enhance cultural awareness in projects.

Associations between Demographics and Key Study Variables

A Chi-square test of independence was conducted to explore the relationship between respondents' demographic characteristics and their perceptions of cultural influence, leadership effectiveness, and participation in projects incorporating cultural awareness strategies. The analysis aimed to determine whether variables such as sex, age, education, and project position were associated with differences in respondents' views on these key aspects of road infrastructure project performance.

Table 5: Summary of Chi-square Tests of Associations

Variables Tested	χ^2 (Chi-square)	Df	p-value	Interpretation
Sex vs. perception of cultural influence	0.037	1	0.848	Not significant; perception similar across sexes
Age group vs. perception of cultural influence	1.25	4	0.872	Not significant; perception similar across age groups
Education level vs. perception of cultural influence	2.56	4	0.632	Not significant; education does not influence perception
Position held vs. perception of leadership effectiveness	3.14	5	0.679	Not significant; perception similar across positions
Sex vs. participation in culturally aware projects	0.25	1	0.617	Not significant; participation not influenced by sex
Age group vs. participation in culturally aware projects	2.05	4	0.726	Not significant; participation not influenced by age
Position held vs. participation in culturally aware projects	2.98	5	0.702	Not significant; participation not influenced by position

The results indicated no significant associations between demographic factors sex, age, education, or project role and perceptions of cultural influence, leadership effectiveness, or involvement in culturally aware projects (all *p* > 0.05). These findings suggest that views on culture and leadership are consistent across different demographic groups.

4.5 Discussion of Research Findings

4.5.1 Influence of Culture on Project Performance

The study found that culture shapes project performance mainly through conflict management, stakeholder participation, teamwork, communication, and leadership. Respondents highlighted issues such as differences in work attitudes, community-related delays, and communication barriers, all of which affect coordination and delivery. These findings align with Hofstede (2011), who argues that cultural norms and expectations influence collaboration and decision-making, and Ochieng and Price (2010) [22], who note that multicultural teams often struggle with differing expectations. The results further support Turner and Müller (2006), who suggest that project success requires leaders who can manage cultural complexity.

4.5.2 Communication and Leadership as Cultural Factors

Communication and leadership are key cultural drivers of project success. Unclear instructions and poor communication cause errors and delays, whereas strong leadership boosts morale, cooperation, and accountability. These findings align with Kerzner (2017) [17], who highlights communication as critical, and with Turner and Müller (2006), who link leadership style and cultural awareness to performance. Authoritative leadership is often preferred for clarity in complex projects, while participative approaches support teamwork and stakeholder engagement.

4.5.3 Incorporating Cultural Awareness into Project Management

Findings showed that cultural awareness strategies such as using local languages, aligning project timelines with cultural practices, involving traditional leaders, and offering cultural training help reduce conflict and improve stakeholder engagement. However, these strategies were not applied consistently across projects. These results mirror Ochieng and Price (2010) [22], who argue that proactive cultural management improves efficiency and community relations, and align with Hofstede (2011), who highlights the role of understanding cultural expectations in shaping organizational outcomes. The findings also reflect Turner and Müller's (2006) assertion that culturally competent leadership enhances project coordination and acceptance.

4.5.4 Associations between Demographics and Key Study Variables

Chi-square analysis showed no significant associations between demographic characteristics sex, age, education, and project role and perceptions of culture, leadership effectiveness, or participation in culturally aware projects. This suggests that cultural and leadership issues are

experienced similarly across all groups. This is supported by Hofstede (2011), who notes that organizational culture often overrides individual demographic differences in shaping perceptions and behaviour.

4.5.5 Synthesis and Implications

The findings show that culture, communication, and leadership collectively influence project performance in Lusaka's road infrastructure projects. Cultural dynamics affect teamwork, engagement, and decision-making, while communication and leadership shape cooperation, error reduction, and task coordination. Although demographics did not affect perceptions, cultural awareness strategies supported by Hofstede (2011), Ochieng & Price (2010) [22], and Turner & Müller (2006) were shown to improve project delivery and stakeholder satisfaction. These insights highlight the need for project managers to integrate cultural assessments, strengthen leadership skills, and adopt culturally responsive communication practices.

5. Conclusion and Recommendations

5.1 Conclusion

This study found that culture significantly shapes project performance, particularly in conflict management, stakeholder participation, teamwork, communication, and leadership. While perceptions of its importance varied, cultural misalignments consistently disrupted workflows and caused delays. Effective communication and strong leadership were crucial for reducing errors and boosting coordination and morale. Although cultural awareness strategies like using local languages, aligning with cultural events, training, and engaging traditional leaders improved engagement, their application was inconsistent. Notably, demographic factors did not influence perceptions, indicating that cultural issues impact all groups equally. Ultimately, culture, communication, and leadership are interdependent and vital for enhancing project performance.

5.2 Recommendations

The study recommends integrating cultural awareness into project planning, using local languages, aligning work with cultural events, strengthening leadership through culturally sensitive training, involving traditional leaders, establishing feedback channels, creating policies that support cultural inclusion, offering continuous staff training, and considering cultural factors in monitoring and evaluation.

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