Challenges of Digital Communication in Child-Centered NGO Interventions in Arusha, Tanzania

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Abstract

This study investigates the challenges of digital communication in project interventions conducted by child-centered non-governmental organizations (NGOs) in Tanzania, focusing on NGOs in Arusha. The research aimed to evaluate the impact of digital communication channels on project interventions, examine the influence of sustainability factors on digital communication strategies, and analyze the types of strategies employed by these organizations. Data were collected from 18 NGOs and 110 respondents, and multiple linear regression was used to explore the relationships among the study variables. The findings revealed positive associations between digital communication strategies, sustainability factors, and digital communication channels with the effectiveness of project interventions. These results suggest that digital communication tools significantly enhance NGOs' ability to reach their target communities, improve project execution, and facilitate real-time engagement with stakeholders. Furthermore, sustainability factors, such as stable financial resources and consistent training, were found to amplify the effectiveness of digital strategies. To maximize impact, NGOs should focus on bridging digital literacy gaps through targeted training and investing in reliable digital infrastructure and robust data security measures to address the unique challenges of their operational environment.

1.Introduction

The persistent problem of project failures has long been a significant concern for organizational management, particularly in non-governmental organizations (NGOs). Effective communication has been identified as a critical factor in overcoming obstacles that limit the success of project interventions. Achieving project goals, ensuring timely completion, and optimizing resource use depend on well-structured and proficient project management strategies (Mkutano & Sang, 2018). In the context of child-centered NGOs, robust communication systems are essential to ensuring that projects meet their objectives and deliver impactful outcomes. Digital communication has emerged as a transformative tool in this regard, enabling real-time stakeholder engagement, effective monitoring and evaluation (M&E), and streamlined resource mobilization (Bicak et al., 2021).

Digital communication tools such as social media, mobile applications, and online data management systems have revolutionized how NGOs operate globally. These tools enhance outreach, increase stakeholder collaboration, and improve awareness-raising campaigns (Chadwick & May, 2021). In Arusha, Tanzania, where many child-centered NGOs are actively working to improve the welfare of children, digital communication holds significant potential for optimizing project execution. Through these tools, NGOs can monitor immunization rates, deliver remote educational content, and ensure child protection programs reach even the most marginalized communities (Sewell, 2020). Such capabilities underscore the importance of digital communication as a critical enabler for achieving meaningful social impact.

However, the implementation of digital communication in project interventions across Arusha has encountered significant challenges. One major issue is Tanzania's infrastructural limitations, including unreliable internet connectivity and electricity, especially in rural areas where many NGOs operate (Makombe & Maziku, 2019). These infrastructure deficits hinder real-time communication and the effective deployment of digital tools. Furthermore, the digital skills gap among NGO employees exacerbates the problem. Many organizations lack the capacity to provide adequate training, leaving employees unable to fully leverage available digital platforms (Mutagahywa & Mhando, 2022).

Cultural and linguistic barriers further complicate the adoption of digital communication strategies. A reluctance to embrace new technologies, coupled with language diversity in the region, makes it challenging to implement inclusive and effective digital solutions (Mwakalinga, 2021). Additionally, financial constraints limit NGOs' ability to invest in necessary infrastructure and employee training (Lwoga & Ngulube, 2021). These financial limitations also restrict NGOs' ability to maintain or upgrade existing systems, resulting in suboptimal utilization of digital communication tools.

Data privacy and security concerns represent another critical challenge, particularly in the context of child-centered NGOs. The sensitive nature of the information handled by these organizations demands stringent data protection measures. However, many NGOs lack the resources or expertise to ensure compliance with best practices for safeguarding personal data, further complicating the integration of digital solutions (Muganyizi, 2020). Such vulnerabilities underscore the importance of addressing data governance issues as part of the broader strategy to enhance digital communication effectiveness.

The increasing reliance on digital communication in NGO operations necessitates a thorough understanding of its effectiveness and sustainability in Arusha's unique socio-economic and cultural context. While digital tools offer transformative potential, their impact is limited by the challenges of infrastructure, skills gaps, cultural factors, financial constraints, and data security concerns. To fully leverage digital communication in child-centered interventions, it is essential to identify and address these barriers systematically. This study aims to explore the challenges faced by child-focused NGOs in Arusha in integrating digital communication into their project interventions. It seeks to analyze the impact of these challenges on project effectiveness and provide practical recommendations to help NGOs enhance their operational efficiency and maximize their social impact. By addressing these issues, this research contributes to the broader discourse on improving digital communication strategies for development-focused organizations in Tanzania.

2.Empirical Literature

Morris (2019) identified that NGOs leveraging social media and mobile applications could engage stakeholders more efficiently through real-time interactions. Features such as comment sections, direct messaging, and interactive polls allowed NGOs to obtain immediate feedback from communities, enabling adaptive and responsive project management. This direct interaction not only strengthened relationships with beneficiaries and supporters but also fostered greater loyalty and trust, essential for long-term engagement and impact. Additionally, Zhang, Xue, and Kumar (2014) highlighted the transformative role of social media platforms in extending the outreach of child-focused NGOs, particularly in raising awareness about child protection, education, and health initiatives. By engaging with diverse stakeholders—ranging from local communities to international donors—social media amplified the operational efficacy of these organizations. Similarly, Jansson et al. (2016) emphasized that social media promotes participatory approaches, empowering children and adolescents to actively engage in discussions and share experiences. This dual benefit of amplifying visibility and facilitating real-time engagement has proven essential for NGOs striving to address complex social issues.
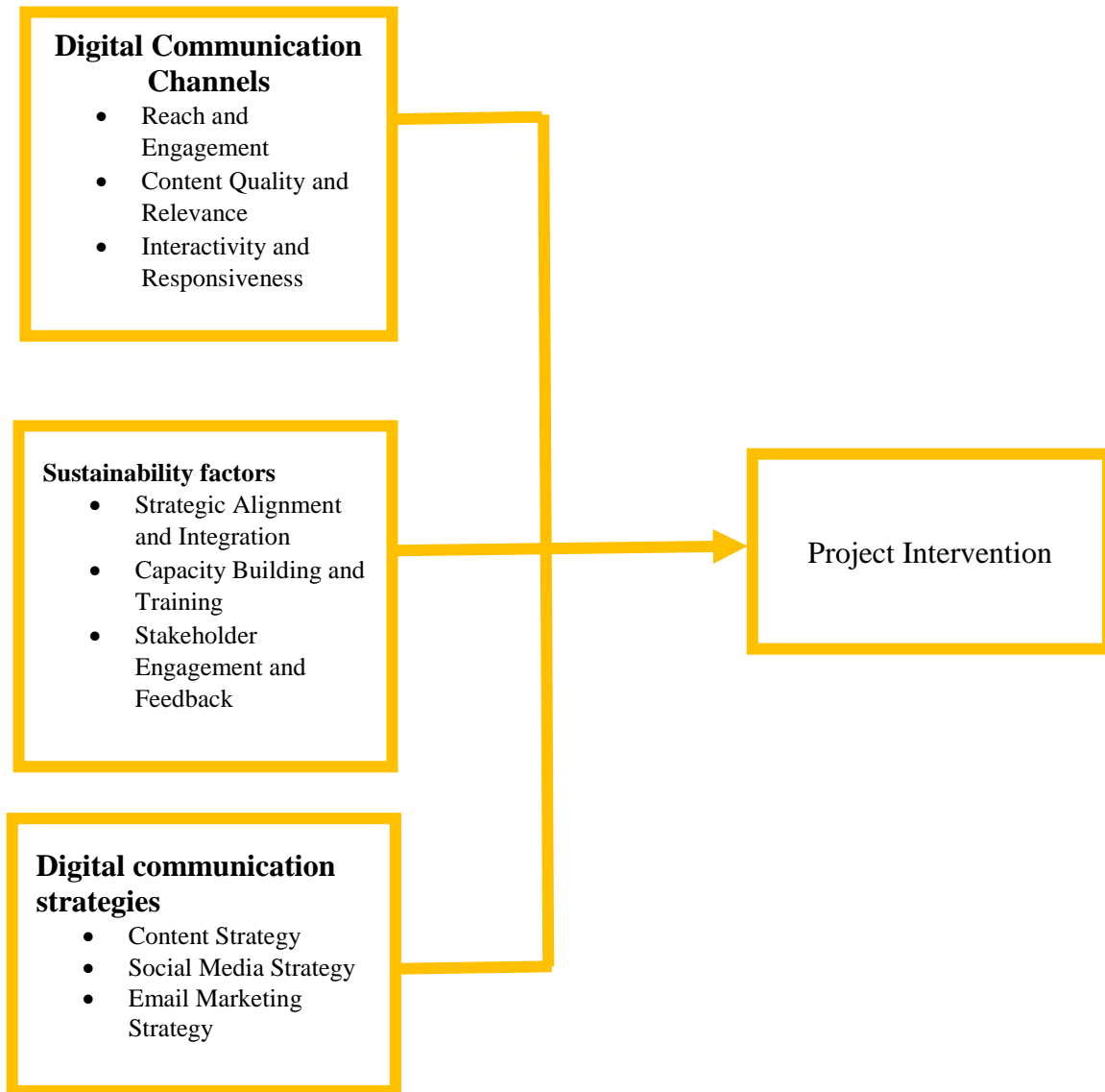
Evans et al. (2017) underscored the effectiveness of integrating e-learning platforms into NGO websites, especially in rural areas. These platforms ensured the delivery of consistent, accessible, and age-appropriate educational content to children, enhancing the impact of learning initiatives. Bannister et al. (2018) revealed that child-centered NGOs in East Africa effectively utilized internet forums to engage families in child health efforts. These forums provided a space for sharing health advice, conducting surveys, and fostering peer support, which helped build a sense of community and improve compliance with health and educational interventions.

The financial capacity of NGOs significantly influences their ability to leverage digital communication technologies. Sharma and Raghav (2019) observed that financially stable NGOs could invest in advanced digital tools, including mobile apps, websites, and social media campaigns, leading to enhanced outreach and stakeholder engagement. Conversely, Mok, Tsang, and Eltayeb (2015) noted that budgetary constraints often hinder NGOs from maintaining the infrastructure required for digital communication, such as reliable internet access and software updates. This limitation is particularly detrimental to child-centered NGOs, as it impedes their ability to sustain long-term digital outreach efforts and services for children and their communities.

Rossi and Cataldo (2018) highlighted the integration of sustainability principles into NGOs' digital communication strategies, emphasizing the growing importance of minimizing environmental impacts. By adopting green computing practices, such as energy-efficient data centers and cloud-based platforms, some child-focused NGOs have successfully aligned their digital operations with broader sustainability goals. Additionally, Gamboa, Ruiz, and Sánchez (2017) found that incorporating social sustainability principles into digital strategies fosters greater community engagement. NGOs that prioritize these principles have demonstrated higher levels of participation from local populations, enhancing the effectiveness of their interventions. Also, Burtch, Carnahan, and Greenwood (2013) highlighted the importance of consistent email communication in maintaining donor engagement and retention. Regular newsletters featuring success stories, fundraising appeals, and project updates have proven effective in sustaining donor interest and participation. Zhang, Xue, and Kumar (2014) similarly reported that NGOs utilizing platforms like Facebook and Twitter experienced significant growth in audience size and global engagement, as these platforms enabled real-time updates on campaigns, events, and child welfare issues.

Participatory communication also plays a vital role in the sustainability of NGO interventions. Mwanyalo (2017) explored how participatory communication strategies influence the long-term viability of NGO programs in Kenya. The study found that participatory communication stages and messages had a statistically significant impact on maintaining NGO interventions. Similarly, Singirankabo (2023) investigated the effect of project communication techniques on the performance of international NGO projects in Rwanda. The findings revealed a strong correlation between interactive communication, consultation, and adherence to project schedules, demonstrating that effective communication is crucial for achieving project objectives. These empirical studies collectively emphasize the transformative potential of digital communication in enhancing NGO operations. However, they also highlight the challenges, including financial constraints, technological barriers, and the need for culturally inclusive communication strategies. Addressing these challenges is essential for NGOs to maximize the benefits of digital tools and achieve sustainable social impact.

Figure 1: Conceptual Framework

Digital Communication Channels
- Reach and Engagement
- Content Quality and Relevance
- Interactivity and Responsiveness

Sustainability factors
- Strategic Alignment and Integration
- Capacity Building and Training
- Stakeholder Engagement and Feedback

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Digital communication strategies
- Content Strategy
- Social Media Strategy
- Email Marketing Strategy

Project Intervention

Methodology

This section outlines the approach utilized in conducting the research, detailing the study area's characteristics, research philosophy, design, data collection methods, and data analysis techniques. The research was conducted in the Arusha Region, located in Northern Tanzania, chosen for its notable presence of both domestic and international NGOs focused on child welfare initiatives. Arusha serves as a strategic point for evaluating methodologies and practices in digital communication, supported by prior literature and NGO reports that highlight its prominence in child-centered development efforts.

The study adopted an interpretivist research philosophy, which emphasizes subjective interpretations to understand the dynamics of digital communication in child-centered interventions. A descriptive survey methodology was employed, allowing an accurate representation of individual and group characteristics, as highlighted by Kothari (2017). This

method supports a needs assessment approach, aiding decision-making and facilitating further exploration of digital communication's scope, types, and impact on NGO operations.

The study targeted 89 NGOs in Arusha, encompassing 245 professionals across diverse roles such as program managers, communication officers, and field specialists. A non-probability purposive sampling technique was used to select 18 child-centered and active NGOs, yielding 110 respondents who were deemed most relevant to the research objectives. This method ensured the inclusion of perspectives critical to understanding digital communication practices. Primary data were collected using structured questionnaires designed on a five-point Likert Scale to gauge participants' agreement with study variables. This tool allowed the systematic collection of directly relevant information while accommodating geographically dispersed respondents. Data analysis involved both qualitative and quantitative methods, utilizing SPSS to generate descriptive statistics and regression analysis to explore relationships between variables. Pearson correlation and multiple linear regression analyses were performed to predict dependent variables based on digital communication strategies, sustainability factors, and channels.

3.Results
The primary objective of the study was to assess and establish the relationship between the variables under investigation. To achieve this, multiple linear regression analysis was employed, with the analysis segmented into distinct subsections: model summary, analysis of variance (ANOVA), and model coefficients. The model summary table provides insights into the model's effectiveness in explaining variations in the dependent variables. Key metrics highlighted include R, representing the correlation between observed and predicted values of the dependent variable, and R-squared, indicating the proportion of variation in the dependent variable explained by the model. The results presented in the model summary offer a comprehensive evaluation of the study's findings.

Table 1: Model Summary

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.856a	.733	.719	1.25906	1.815
a. Predictors: (Constant), DCS, SF, DCC					
b. Dependent Variable: PI					

The correlation coefficient (R) for the study is 0.856, indicating a strong positive relationship between digital communication attributes and project intervention. The coefficient of determination (R-squared) explains the extent to which the independent variables account for the variation in the dependent variable. According to the results, the R-squared value of 0.733 suggests that 73.3% of the variation in project intervention is explained by digital communication attributes. The remaining percentage represents factors not accounted for within the scope of this model. This highlights the significant influence of digital communication attributes while acknowledging the contribution of external factors beyond the model.

Analysis of variance

The ANOVA table evaluates the overall statistical significance of the regression model. The model's validity is determined using the F-statistic, where a p-value less than 5% (0.05) signifies that the model is statistically significant, indicating a meaningful relationship between the independent and dependent variables. Conversely, a p-value greater than 5% suggests the model is not statistically significant. The results of the analysis are presented as follows:

Table 2: Analysis of Variance

ANOVAa					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	21.830	3	7.276	4.591	0.034b
Residual	168.036	106	1.585		
Total	189.866	109			
a. Dependent Variable: PI					
b. Predictors: (Constant), DCS, SF, DCC					

The ANOVA table shows that the probability value (p-value) associated with the F-statistic is 0.034, which is below the 5% significance threshold (0.05). This finding indicates that the overall regression model is statistically significant, meaning there is a meaningful relationship between the independent variables and the dependent variable. Additionally, the table is critical as it details the individual regression coefficients for each predictor variable, based on both unstandardized and standardized coefficients. The unstandardized coefficients provide the actual contribution of each predictor to the dependent variable, while the standardized coefficients (Beta) enable a comparison of the relative impact of each predictor, even when measured on different scales. This comparison helps determine which predictors have a stronger influence on the dependent variable.

The table also includes the t-statistic and p-value for each predictor variable. The t-statistic measures whether the coefficient significantly deviates from zero, while the p-value indicates the statistical significance of this deviation. If the p-value for a predictor is less than 0.05, it suggests that the predictor significantly contributes to the model. These metrics collectively help assess the reliability and importance of each variable in explaining the dependent variable.

Table 3: Coefficient Model

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.822	0.946		2.984	0.050
	DCC	0.089	0.280	0.017	3.176	0.001
	SF	0.384	0.109	0.049	3.519	0.005
	DCS	0.707	0.280	0.243	2.525	0.013

The table above presents the analysis of the study results regarding the model coefficients. The findings indicate that digital communication channels positively impact project interventions for child-centered projects. Specifically, an increase in digital communication channels corresponds to a 0.089 increase in project intervention effectiveness, assuming all other factors remain constant.

Additionally, the coefficient is statistically significant, as evidenced by a p-value below the 5% threshold. The results also show that sustainability factors have a positive influence on project interventions for child-centered projects. An increase in sustainability factors by one unit leads to a 0.384 increase in project intervention levels, holding other factors constant. This coefficient is similarly statistically significant, with a p-value below 5%, underscoring its importance in the model.

Lastly, the analysis suggests that digital communication strategies significantly enhance project interventions for child-centered initiatives. A unit increase in digital communication strategies results in a 0.707 increase in project intervention effectiveness, assuming other factors are constant. This coefficient is also statistically significant, supported by a p-value less than 5%. These findings collectively highlight the critical roles of digital communication channels, sustainability factors, and strategies in advancing child-centered project interventions.

Discussion
The findings of this study highlight the significant role of digital communication tools in enhancing project interventions for child-centered NGOs. As Almansa-Martínez, Quintana-Pujalte, and Castillo-Esparcia (2022) argue, social media and digital platforms are essential in mobilizing resources and engaging stakeholders, particularly in the European Union context. Similarly, in this study, the positive correlation between digital communication channels and project interventions supports the notion that these tools facilitate efficient communication, resource mobilization, and stakeholder involvement, essential for project success. The results align with Bălăcescu's (2021) observations on the transformative impact of digital communication in small NGOs. This study found that NGOs employing advanced digital strategies experience improved outcomes in child-centered projects. The standardized coefficients suggest that digital communication strategies contribute more significantly to project intervention success than standalone communication channels. This finding underscores the importance of strategic planning in the digitalization process, as highlighted by Gray and Rumpe (2015), who emphasize the value of aligning digital tools with organizational goals for sustainable impact.

Sustainability factors emerged as a key determinant of project success, with a significant positive influence on project interventions. This finding resonates with Carbajo Vasco, Ruesga Benito, and da Silva Bichara (2018), who emphasize the role of strategic fundraising and stakeholder engagement in ensuring the longevity of NGO initiatives. The ability to sustain projects over time directly correlates with consistent communication, stakeholder trust, and adaptability to evolving digital trends, as seen in this study's results. The statistical significance of digital communication strategies aligns with Bertot, Jaeger, and Grimes (2010), who discuss how ICTs create a culture of transparency and accountability. The study's results demonstrate that NGOs adopting comprehensive digital strategies not only enhance project delivery but also strengthen organizational credibility. This transparency fosters trust among beneficiaries and donors, further amplifying the impact of project interventions.

Language barriers and contextual differences in implementing digital tools remain critical challenges for NGOs, as highlighted by Kita, Gikundi, and Lema (2019). The findings suggest that while digital communication strategies are impactful, their effectiveness depends on the inclusivity and contextual relevance of the tools. These findings are consistent with Moreno-Cabanillas,

Castillero-Ostio, and Castillo-Esparcia (2024), who emphasize the need for culturally sensitive communication strategies in global NGOs to ensure equitable access and engagement. Furthermore, this study corroborates the findings of Mtega and Komba (2017), who explored ICT adoption in Tanzanian NGOs and highlighted challenges such as inadequate infrastructure and digital literacy. While digital tools have a transformative potential, their full utilization requires addressing these foundational issues. The study's emphasis on sustainability factors reflects the need for a robust support system that integrates digital training and resource allocation into NGO operations. Finally, this study's results support Shava and Maramura's (2016) assertion that ICT adoption in NGOs enhances operational efficiency and project outcomes. The significant impact of digital communication channels and strategies on child-centered projects demonstrates that embracing digitalization is no longer optional but essential. As NGOs increasingly rely on digital tools, there is a pressing need for ongoing evaluation and refinement of these strategies to ensure their alignment with organizational objectives and beneficiary needs.

Conclusion.
In summary, the implementation of digital communication in project initiatives by child-centered non-governmental organizations (NGOs) in Tanzania has demonstrated a transformative impact. Through the integration of digital tools like mobile applications, social media platforms, SMS, and online resources, NGOs may augment their outreach, promote increased interaction with children and families, and surmount logistical obstacles, especially in distant or underserved regions. These digital tactics enhance the accessibility of essential information and resources while facilitating real-time contact, allowing NGOs to respond more effectively to the needs of the communities they serve. Moreover, digital platforms enhance the scalability and sustainability of initiatives by enabling wider participation, optimizing data collection, and minimizing operational expenses.

Basing on study findings on the below are the study recommendations, non-governmental organizations should fund digital literacy programs for children and caregivers to help them use digital tools and platforms. To improve technological access, especially in rural and underserved areas, local governments, technology corporations, and community organizations must collaborate to provide affordable gadgets and internet connectivity. NGO digital communication strategies must be tailored to local languages and cultures to be effective. Indigenous languages and culturally relevant content improve message comprehension and relatability, making digital tools more effective at engaging children and their families.

Non-governmental organizations should work with government, business, and international organizations to improve digital infrastructure. Internet connection in remote areas, localized digital content, and resource sharing to improve treatments are examples of collaborative endeavors. Prioritize digital communication technique evaluation and review. Non-governmental organizations should regularly gauge the effectiveness of their tools and platforms by asking children, families, and communities. This data may improve digital projects, keep them relevant, and reduce obstacles to access and engagement. NGOs collecting sensitive data from children and families using digital tools must prioritize data privacy and security. Participant confidentiality must be protected by explicit protocols, and communities should be educated about data privacy in the digital age.

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