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Influence of Availability of Digital Tools on the Effectiveness of Communication as a Management Function among Managers and Stakeholders in Muhoroni Sub-County, Kisumu County, Kenya

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Abstract
The purpose of the study was to examine influence of availability of digital tools on the effectiveness of communication as a management function among managers and stakeholders in Muhoroni sub-county, Kisumu county, Kenya. The study's research question was: To what extent does the availability of digital tools influence the effectiveness of communication as a management function among managers and stakeholders? It was anchored on the Diffusion of Innovations Theory by Everett Rogers (2023), the study adopted a mixed methods approach using a convergent parallel design. The target population included: 115 public junior schools, 115 heads of institutions, 300 teachers, three Quality Assurance and Standards Officers (QASO), and one Sub-County Director of Education (SCDE). Stratified sampling was used to select 10 junior schools, simple random sampling to select 74 junior school teachers, and purposive sampling to include 10 heads of institutions, QUASOs), and the SCDE. Data was collected using questionnaires for teachers and interview guides for heads of institutions and education officials. Reliability of research instruments was established using a Cronbach's Alpha coefficient of 0.7. Quantitative data was analyzed using descriptive and inferential statistics, while qualitative data was analyzed thematically. Ethical considerations, including informed consent, confidentiality, and voluntary participation, were strictly observed throughout the study. The study found that the availability of digital tools significantly influences communication effectiveness as a management function by enhancing information sharing, decision-making, collaboration, and stakeholder engagement. It concluded that accessible and reliable digital communication platforms improve managerial efficiency and strengthen relationships among organizational stakeholders. The study recommends investment in appropriate digital technologies, continuous training for managers and stakeholders, and development of supportive policies to promote effective utilization of digital communication tools.

Key Words: Availability of digital tools; Digital communication tools; Communication effectiveness; Management communication; and Communication as a management function

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Background to the Study

The availability of digital tools has increasingly become a critical component of effective organizational communication in the 21st century. Digital tools refer to electronic technologies and platforms that enable individuals and organizations to create, share, store, and exchange information efficiently. These tools include email systems, digital communication platforms, management information systems, video conferencing applications, and collaborative technologies that support timely communication and coordination among organizational actors. In management, effective communication involves the systematic transmission of information, feedback, instructions, and decisions among managers and stakeholders to facilitate achievement of organizational goals. The availability of digital tools enhances managers' ability to communicate efficiently, coordinate activities, maintain stakeholder relationships, and support evidence-based decision-making. Therefore, examining the influence of digital tool availability on communication effectiveness as a management function provides important insights into how technology contributes to organizational performance and stakeholder engagement.

Globally, the availability of digital communication tools has transformed management practices by improving accessibility, speed, and reliability of information exchange among organizational stakeholders. International organizations emphasize that digital technologies are essential for strengthening institutional communication, accountability, and collaborative decision-making. According to UNESCO, UNICEF, and the World Bank (2021), digital systems enhance the capacity of organizations to collect, process, and share information required for effective planning and management. Digital communication platforms enable managers to provide timely updates, coordinate activities, monitor progress, and engage stakeholders beyond traditional communication limitations. However, the effectiveness of these tools depends on factors such as accessibility, digital competence, infrastructure availability, and organizational support. Consequently, the presence of digital tools alone may not guarantee effective communication unless managers and stakeholders possess the skills and institutional capacity required for meaningful utilization.

In developed countries, the availability of digital tools has significantly influenced communication effectiveness within organizational management structures. In the United Kingdom, organizations and public institutions increasingly rely on digital communication systems to improve information sharing, stakeholder interaction, and administrative coordination. Management Information Systems (MIS), online communication platforms, and electronic reporting systems have enabled managers to communicate more efficiently with employees and external stakeholders (Department for Education, 2023). Similarly, in Australia, digital technologies have supported data-driven management through integrated communication systems, performance dashboards, and digital reporting mechanisms (OECD, 2021). These developments have enhanced transparency, accessibility, and responsiveness in organizational communication. However, studies also indicate challenges such as unequal digital skills, information overload, and difficulties in adapting to technological changes, demonstrating that effective communication requires both availability of digital tools and appropriate managerial competencies.

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Further evidence from developed countries demonstrates that digital communication effectiveness is strongly influenced by continuous training and institutional support. In Singapore, investment in digital leadership development has enabled managers to effectively utilize technological systems for coordination, stakeholder engagement, and policy implementation (Ministry of Education Singapore, 2022). Managers who possess adequate digital competencies are better positioned to integrate digital tools into communication processes and improve organizational responsiveness. Conversely, research in Canada indicates that challenges such as cybersecurity concerns, resistance to technological change, and limited integration of digital systems into leadership practices can reduce the effectiveness of digital communication (Karakose et al., 2022). These findings suggest that while digital tools provide opportunities for improved communication, successful implementation requires supportive organizational cultures, continuous capacity building, and strategic management approaches.

In Africa, the availability of digital tools has increasingly influenced communication practices within organizations, although implementation remains affected by infrastructure and capacity-related challenges. Many institutions have adopted digital platforms to improve information exchange, reporting, stakeholder coordination, and administrative decision-making. In South Africa, digital communication platforms have supported interaction among education managers, teachers, district offices, and other stakeholders, particularly during and after the COVID-19 period. These systems improved reporting efficiency and strengthened stakeholder engagement by enabling faster transmission of information and easier access to institutional records (Mhlanga & Moloi, 2022). Similarly, Rwanda's digital management systems have enhanced communication and administrative coordination in public institutions through alignment with national ICT development strategies (REB, 2021). However, challenges such as inadequate infrastructure, limited digital skills, and inconsistent technical support continue to affect the effectiveness of digital communication systems. These findings demonstrate that the availability of digital tools can improve management communication, but their impact depends on institutional readiness and users' capacity to utilize them effectively.

Evidence from Ghana and Nigeria further demonstrates the importance of digital tools in strengthening managerial communication and stakeholder coordination. In Ghana, ICT-trained managers have demonstrated improved communication with education offices, better record management, and more efficient administrative coordination due to increased use of digital systems (Boateng et al., 2023). Conversely, Nigeria continues to experience challenges related to unreliable internet connectivity, inadequate access to digital devices, and limited digital competencies among managers, which affects communication efficiency and delays decision-making processes (Adebayo & Adigun, 2021). These findings indicate that access to digital tools is an important factor in enhancing communication effectiveness; however, technological availability must be accompanied by training, infrastructure investment, and institutional support. Despite increasing adoption of digital technologies across African organizations, empirical evidence regarding how digital tool availability influences communication as a management function remains limited, particularly within public institutions at sub-county levels.

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In Kenya, the integration of digital tools into organizational management has been promoted through national ICT policies and digital transformation initiatives. The government has emphasized the use of digital technologies to enhance communication, information management, accountability, and service delivery within public institutions (Ministry of Education, 2023). Digital platforms have provided opportunities for managers to communicate with stakeholders more efficiently, share information in real time, and support evidence-based decision-making. However, implementation reports indicate variations in access to digital infrastructure, digital competence, and the capacity of managers to effectively utilize available technologies, particularly in public institutions (MoE, 2023). This gap between policy expectations and practical implementation raises concerns regarding whether the availability of digital tools automatically translates into effective communication among managers and stakeholders. Therefore, empirical investigation is necessary to determine the extent to which digital tool availability contributes to communication effectiveness within specific organizational contexts.

The legal and policy environment in Kenya recognizes the importance of technology in improving institutional management and service delivery. The Basic Education Act (2013) and national ICT policies encourage the adoption of appropriate technologies to enhance administrative efficiency, accountability, and stakeholder participation. According to Republic of Kenya (2021), effective institutional management requires mechanisms that facilitate timely communication, coordination, and engagement among different stakeholders. However, existing studies indicate that challenges related to inadequate training, limited monitoring mechanisms, and unequal access to digital resources continue to affect effective technology utilization among managers (Odhiambo & Muthaa, 2022). Consequently, there remains a need to examine how the availability of digital tools influences communication effectiveness, particularly among managers who rely on communication processes to coordinate activities, engage stakeholders, and achieve institutional objectives.

County-level studies in Kenya reveal variations in the adoption and effectiveness of digital communication tools among institutions. Research conducted in Nairobi County indicates that improved access to digital facilities and managerial training enhances communication efficiency, faster decision-making, and better coordination among stakeholders (Mutisya & Makokha, 2021). Conversely, studies in Uasin Gishu County demonstrate that inadequate digital competencies and inconsistent utilization of digital systems may limit communication effectiveness among managers and stakeholders (Kiprono & Sang, 2022). These differences suggest that contextual factors such as infrastructure availability, managerial skills, and institutional support influence the extent to which digital tools improve communication. Therefore, localized studies are important in understanding how specific organizational environments shape the relationship between digital tool availability and communication effectiveness.

In Kisumu County, and particularly Muhoroni Sub-County, the availability and utilization of digital tools remain important considerations in understanding management communication practices. Previous research examining digital resource availability in schools within Kisumu Central and Muhoroni Sub-Counties found challenges related to access, utilization, and integration

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of digital resources, suggesting limitations in the effective adoption of technology within institutional settings (Maloba, Chelule, & Wesonga, 2021). Although the study focused mainly on instructional applications rather than managerial communication, its findings highlight contextual challenges that may influence managers' ability to use digital tools for communication, coordination, and stakeholder engagement. These challenges create the need for further investigation into how the availability of digital tools influences communication effectiveness among managers and stakeholders within Muhoroni Sub-County.

Despite increasing attention to digital transformation, limited empirical research has examined the influence of digital tool availability on communication as a management function among managers and stakeholders, particularly at the sub-county level. Existing studies have largely focused on digital tools for teaching and learning, while limited attention has been given to their role in managerial communication, stakeholder engagement, information sharing, and decision-making processes. Furthermore, few studies have examined how factors such as accessibility, reliability, and usability of digital tools affect communication effectiveness within local institutional contexts. Therefore, this study seeks to address this gap by examining the influence of availability of digital tools on the effectiveness of communication as a management function among managers and stakeholders in Muhoroni Sub-County, Kisumu County, Kenya.

Statement of the Problem

Effective managerial communication, prompt decision-making, and capable management backed by managers' digital tools are ideal in public junior schools. Digital platforms that improve openness, data utilization, and stakeholder interaction have helped to partially attain this goal in developed environments (DfE, 2023; OECD, 2021). However, this ideal cannot be fully realized because to uneven digital competency, data overload, resistance to change, and a lack of institutional support (Karakose et al., 2022; OECD, 2021). Managers and education officials in African contexts are complaining more and more about fragmented communication, delayed decisions, and managerial inefficiencies brought on by poor infrastructure, unstable connectivity, and insufficient training (Adebayo & Adigun, 2021; Mhlanga & Moloi, 2022). These issues could result in ongoing inefficiencies, poor accountability, and a decrease in the provision of educational services if they are not resolved.

Although digital integration is emphasized in Kenyan policy and legislative frameworks as being crucial for efficient school management, there is still a disconnect between policy purpose and practice (MoE, 2023; Republic of Kenya, 2021). Evidence at the county level demonstrates differences, with rural schools reporting inconsistent system use and poor digital trust while urban schools report better communication (Mutisya & Makokha, 2021; Ekal & Lokuruka, 2022). Parents, teachers, and managers are worried that CBE implementation could be undermined by the ongoing loss in managerial performance in the absence of focused reforms. There is still little empirical data at the junior school and sub-county levels, despite studies showing that managers with ICT training exhibit superior record management and coordination (Wambui et al., 2023). Therefore, by investigating effectiveness of digital integration on education management in public

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junior schools in Muhoroni sub-county, Kisumu county, Kenya, this study aims to close these knowledge gaps.

Research Question

To what extent does the availability of digital tools influence the effectiveness of communication as a management function among managers and stakeholders?

Theoretical Framework

The study was anchored on Diffusion of Innovation Theory, developed by Everett Rogers in 1962 and further refined in subsequent works. The theory explains how new ideas, technologies, and practices spread and become adopted within a social system over time. According to Rogers (2003), diffusion involves communication processes through which innovation-related information is shared among individuals and organizations, influencing decisions regarding adoption and continued use. The theory identifies that adoption of innovations is influenced by factors such as perceived usefulness, compatibility, complexity, trialability, and observability. The theory is relevant to this study because the availability of digital tools represents an innovation within organizational management systems, where managers and stakeholders must adopt and utilize technologies such as digital communication platforms, electronic information systems, and collaborative tools to enhance communication effectiveness as a management function in Muhoroni Sub-County, Kisumu County, Kenya.

A major proposition of Diffusion of Innovations Theory is that adoption of technology occurs through interactions between the characteristics of the innovation, users, and the social environment in which adoption takes place. Rogers (2003) identifies five adopter categories: innovators, early adopters, early majority, late majority, and laggards, which explain variations in individuals' willingness and ability to embrace new technologies. In organizational contexts, managers who perceive digital tools as beneficial, compatible with existing communication processes, and easy to use are more likely to adopt them effectively. This perspective aligns with the current study because the effectiveness of communication among managers and stakeholders depends not only on the availability of digital tools but also on users' acceptance, digital competence, and institutional support. Therefore, the theory provides a framework for understanding how differences in technology adoption influence communication effectiveness, information sharing, coordination, and stakeholder engagement.

One of the major strengths of Diffusion of Innovations Theory is its ability to explain the processes through which technological innovations are accepted, implemented, and sustained within organizations. The theory emphasizes the importance of communication channels, social influence, and leadership support in facilitating technology adoption. This makes it useful in explaining how managers and stakeholders interact with digital tools and how such interactions influence communication outcomes. The theory also highlights innovation characteristics, including relative advantage, compatibility, complexity, trialability, and observability, which help explain why some organizations adopt digital communication systems more effectively than others (Rogers, 2003). In the context of Muhoroni Sub-County, the theory assists in examining how the

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availability and perceived usefulness of digital tools influence managers' ability to communicate effectively with stakeholders, coordinate activities, and support timely decision-making.

Despite its strengths, Diffusion of Innovations Theory has some limitations. One major criticism is that the theory may assume that innovations are naturally beneficial and should be adopted, while overlooking situations where technologies may not align with organizational needs, available resources, or local contexts. Additionally, the theory places considerable emphasis on individual adoption decisions but may not adequately address broader structural challenges such as inadequate infrastructure, limited financial resources, weak institutional support, and unequal digital skills. In some organizational settings, the availability of digital tools may not automatically lead to effective communication if users lack training or if communication structures are poorly developed. However, despite these limitations, Diffusion of Innovations Theory remains appropriate for this study because it provides a comprehensive framework for examining how the availability, acceptance, and utilization of digital tools influence communication effectiveness as a management function among managers and stakeholders in Muhoroni Sub-County, Kisumu County, Kenya.

Review of Related Empirical Literature

Karsenti and Parent (2021) conducted a research on the use of ICT technologies as a means of enhancing school-community communication in Canadian schools. The aim of the study was to determine the way digital platforms enhance institutional transparency, parental involvement, and information flow. The study employed a mixed-methods approach and involved questionnaires and semi-structured interviews with 420 participants (including parents, teachers and school managers). Based on community engagement theory, validated questionnaires and interview guides with reliability coefficients greater than 0.80 were used to gather data. The findings indicated that community and school trust, timeliness, and access were improved with the use of social media, school websites, and email. Disparities in digital integration, however, continued. To guarantee fair engagement from all stakeholders, the study suggested inclusive ICT policies and ongoing professional development.

Although Karsenti and Parent (2021) adopted a mixed-methods design, they failed to differentiate the quantitative and qualitative designs that informed the integration and collection of data, and they never clearly identified the type of mixed-methods design they adopted. This limits the richness of interpretation between the trends of data and the life of the stakeholders, as well as transparency of methods. The current study addressed this gap by particular application of the mixed methods approach with convergent parallel approach, which allowed simultaneous data collection and integration. Although a phenomenological approach yielded more qualitative information on the experiences of participants, which resulted in more robust and integrated results, to determine patterns of ICT-based communication, a cross-sectional design was used to gather quantitative data.

Johnson et al. (2022) looked into how Australian school leaders' communication habits are supported by digital platforms. The aim of the research was to establish the relationship between the digital leadership tools and effective stakeholder engagements. In a quantitative correlational

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method about 300 school managers were surveyed using structured questionnaires. The research had high reliability (.87) and employed factor analysis to determine the instrument validity which was guided by the theory of transformational leadership. The findings indicated that messaging apps, video conferencing, and learning management systems enhanced instructional leadership, transparency and teamwork. Nevertheless, the best use was limited due to the workload limitations and disparities in access. The authors proposed to develop national norms and incorporate digital communication competencies into leadership training to encourage the establishment of uniform and ethical digital communication practices in schools.

The research design was a quantitative correlational study, which did not provide insights into the experience and interpretation of digital communication practices by school leaders and stakeholders, despite the fact that Johnson et al. (2022) have discovered a strong correlation between digital platforms and school leadership communication. Understanding the contextual difficulties, meanings, and lived experiences behind the observed connections was hampered by the lack of qualitative data. By combining a qualitative approach with quantitative techniques, the current study closed this gap and allow for an examination of stakeholders' viewpoints. Richer explanations of how and why digital communication tools affect stakeholder involvement and leadership practices were provided by this hybrid approach.

Adebayo and Adesoji (2021) explored the effect of digital tools on managerial communication in secondary schools in Nigeria. The aim was to assess the rates of ICT adoption and perceived effectiveness in management interactions. The cross sectional survey method of the study involved a sample of 250 respondents. The study was based on the Technology Acceptance Model (TAM). Validated questionnaires were used to gather data. The findings showed that electronic record system, email and WhatsApp significantly improved collaboration and information sharing. Nonetheless, there was a restriction in usage due to factors such as unstable energy and poor ICT skills. The study suggested ongoing ICT capacity-building initiatives for school managers as well as more government funding for infrastructure.

The study was restricted to managers' reported perceptions by Adebayo and Adesoji's (2021) use of a quantitative cross-sectional survey, which failed to capture the deeper experiences and contextual realities impacting ICT use. Qualitative research is lacking to understand how infrastructure and issues related to skills influence management communication in practice. By using a mixed methods approach and combining quantitative data with qualitative insights to investigate stakeholders' lived experiences, the current study closed this gap. This approach made the findings more relevant to practice and policy by providing more comprehensive accounts of the barriers to ICT adoption and usage patterns.

Mukumana (2023) investigated the use of ICT-enhanced communication systems in Rwandese schools with a focus on its effectiveness in facilitating connections between schools and parents. The researchers employed an integrated-methodology that involved interviewing and surveying 300 parents and 180 teachers. The research involved validated measures, reliability index of which exceeded 0.78, but it was also supported by the diffusion of innovations theory. The results showed that parental knowledge of academic progress and school activities was

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enhanced by SMS notifications, school portals, and mobile applications. The poor connectivity of smartphones and internet however undermined full participation. This report proposed the promotion of digital inclusion, the expansion of the ICT infrastructure in the country, and training teachers on how to operate school communication systems.

The context of the study by Mukumana (2023) was the geographical and cultural context of Rwanda characterized by strong centralized ICT policies, strong national coordination of digital activities, and relatively stable implementation of school communication systems. Schools in Kenya, however, operate in more decentralized education systems, a diversity of sociocultural settings and varying levels of ICT access between counties. As a result, the results from Rwanda might not accurately represent the differences in infrastructure, parental involvement, and communication dynamics found in Kenyan schools. The current study filled this geographical and cultural gap and yield more evidence, which is more relevant to Kenyan educational policy and practice by exploring the topic of ICT-enhanced school communication in the Kenyan setting and capturing locally specific experiences, cultural expectations, and cultural challenges.

The use of digital tools to improve school-stakeholder involvement in Kiambu County was investigated by Gachau and Kimani (2022). The research focused on the use of social media, email and messaging applications in assisting parents, teachers, school management and the community in general to communicate. These results indicated that online resources significantly contributed to collaborative decision-making, information sharing in a timely manner, and engagement. The research however also established that there were various challenges that impeded their effectiveness which include occasional internet connectivity, lack of ICT infrastructure and low digital integration among school staff. To engage stakeholders more and ensure that communication at the school level would be improved, the researchers proposed targeted capacity-building programs, continuous staff digital education, and intelligent investment in ICT infrastructure.

Gachau and Kimani (2022) focused their study primarily on the aspects of communication, although they also highlighted the advantages of digital tools in increasing school-stakeholder engagement, which is why the aspect of more general managerial efficiency is relatively unfamiliar. Poor ICT infrastructure, low staff digital integration and unequal internet coverage were other problems that were identified and not addressed in a systematic manner. Besides assessing infrastructure readiness and specific capacity-building strategies, the existing research addressed these gaps by exploring how integration of digital integration in all the management operations that could enhance decision-making, efficiency and overall management in schools.

Wanjala (2023) looked into how ICT is used in managerial communication in Kakamega County public schools. The research involved examination of digital technology application in speeding up several managerial functions, including coordination between departments, communication within the organization, reporting, and record management. The findings revealed that ICT tools enhanced productivity and reduced management delays, but nonetheless, there remained numerous gaps, in particular, with regard to offering managerial personnel coherent training and granting equal access of all schools to digital resources. Lack of technical support and

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inconsistent policy implementation were other factors that discouraged optimal ICT utilization. To enhance the effectiveness of managerial operations and equip ICT adoption with improved organizational efficiency and informed decision making in school management, the researcher indicated the need to have holistic policy frameworks, sustained professional development and capacity building programs.

Wanjala (2023) demonstrated ICT enhances management communication and efficiency in state schools, but the research focused predominantly on task-specific activities such as reporting and record keeping, with a wider engagement of digital integration mostly unexplored. In addition, weaknesses were also noted, but not fully addressed, such as lack of technical support, application of unequal policies, unequal access to digital resources, and insufficient staff training. The current study sealed these gaps by studying how digital integration on all managerial processes could improve the decision-making process, operational efficiency, and fair use of ICT in managing schools.

Research Design and Methodology

The study adopted a mixed-methods approach using a convergent parallel research design to examine the influence of availability of digital tools on the effectiveness of communication as a management function among managers and stakeholders in Muhoroni Sub-County, Kisumu County, Kenya. A research design provides a systematic framework that guides the execution of a study by ensuring that research questions are addressed in a structured and credible manner. The convergent parallel design was appropriate because it enabled the researcher to collect quantitative and qualitative data concurrently, analyze the two sets of data independently, and integrate the findings during interpretation to provide a comprehensive understanding of the study phenomenon (Creswell & Plano Clark, 2023). Quantitative data were collected from managers and stakeholders through questionnaires to determine the availability of digital tools and their influence on communication effectiveness, while qualitative data were obtained through interviews to explore participants' experiences regarding digital communication practices, stakeholder engagement, information sharing, and decision-making processes.

The study was conducted in Muhoroni Sub-County, Kisumu County, Kenya, which provided an appropriate context for examining the role of digital tools in strengthening communication as a management function. The sub-county has a combination of rural and peri-urban communities characterized by variations in access to digital infrastructure, technological capacity, and organizational resources. Muhoroni Sub-County was selected because institutions within the area increasingly rely on digital technologies for administrative coordination, information sharing, reporting, and engagement with different stakeholders. However, variations in digital access, managerial capacity, and technological support may influence the extent to which available digital tools contribute to effective communication. Therefore, the study sought to generate evidence on how the availability of digital tools supports communication effectiveness among managers and stakeholders within the local organizational context.

The target population comprised managers and stakeholders involved in organizational communication processes within the selected institutions in Muhoroni Sub-County. The

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participants included managers, heads of institutions, relevant administrative officers, and other stakeholders who interact through digital communication platforms. Managers were included because they are responsible for planning, coordinating activities, sharing information, making decisions, and maintaining communication with internal and external stakeholders. Other stakeholders were involved because they provide perspectives on the accessibility, reliability, and effectiveness of communication channels supported by digital tools. Sampling involved probability and non-probability techniques, where stratified and simple random sampling were used to obtain representative quantitative participants, while purposive sampling was applied to select key informants with relevant knowledge and experience regarding digital communication management. This approach ensured that the study captured both measurable patterns and detailed experiences concerning the influence of digital tools on communication effectiveness.

Data were collected using structured questionnaires, semi-structured interview guides, observation guides, and document analysis guides. The instruments were aligned with the study variables, including availability of digital tools, accessibility and adequacy of digital communication platforms, stakeholder engagement, information sharing, coordination, and decision-making effectiveness. Validity of the instruments was enhanced through expert review, alignment with research objectives, and pilot testing, while reliability of quantitative instruments was established using Cronbach's Alpha, with coefficients of 0.70 and above considered acceptable. Qualitative data quality was enhanced through credibility, dependability, confirmability, and transferability procedures. Quantitative data were analyzed using descriptive statistics such as frequencies, percentages, means, and standard deviations, as well as inferential statistics to determine relationships between digital tool availability and communication effectiveness. Qualitative data were analyzed thematically, and findings from both approaches were integrated to provide a comprehensive understanding of how availability of digital tools influences communication as a management function among managers and stakeholders in Muhoroni Sub-County.

Presentation, Interpretation, and Discussion of Findings

The section presents the findings on the availability of digital resources and their influence on the effectiveness of communication among administrators and stakeholders in public junior schools. Respondents were asked their level of agreement to statements on the effect of the availability of digital resources on the effectiveness of communication on a five-point Likert scale (5= Strongly Agree, 4= Agree, 3= Uncertain, 2= Disagree, 1= Strongly Disagree). The results are given in Table 1.

Table 1

Teachers' Responses to Digital Tools Availability and Communication Effectiveness (n=70)

Statement	SA	A	U	D	SD	Mean	Std. De.

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Computers are available for managerial use.	13 (18.6%)	20 (28.6%)	7 (10.0%)	18 (25.7%)	12 (17.1%)	3.06	1.41
Internet access is reliable in the school.	13 (18.6%)	19 (27.1%)	8 (11.4%)	19 (27.1%)	11 (15.7%)	3.06	1.39
Digital platforms support staff communication.	16 (22.9%)	22 (31.4%)	9 (12.9%)	14 (20.0%)	9 (12.9%)	3.31	1.37
Parents are reached through digital communication.	14 (20.0%)	21 (30.0%)	8 (11.4%)	15 (21.4%)	12 (17.1%)	3.14	1.42
Digital tools improve information sharing.	17 (24.3%)	24 (34.3%)	10 (14.3%)	13 (18.6%)	6 (8.6%)	3.47	1.28
Online systems reduce communication delays.	16 (22.9%)	23 (32.9%)	7 (10.0%)	18 (25.7%)	6 (8.6%)	3.36	1.32
Managerial notices are shared digitally.	10 (14.3%)	18 (25.7%)	10 (14.3%)	17 (24.3%)	15 (21.4%)	2.87	1.39
Digital tools enhance feedback from stakeholders.	16 (22.9%)	25 (35.7%)	9 (12.9%)	11 (15.7%)	9 (12.9%)	3.40	1.34
Communication records are stored electronically.	10 (14.3%)	16 (22.9%)	11 (15.7%)	14 (20.0%)	19 (27.1%)	2.77	1.44
Digital tools improve coordination with stakeholders.	14 (20.0%)	24 (34.3%)	9 (12.9%)	12 (17.1%)	11 (15.7%)	3.26	1.38

Availability of digital resources was found to influence communication effectiveness among administrators and stakeholders in the public junior schools positively. On the availability of computers for managerial use, 13 (18.6%) teachers strongly agreed and 20 (28.6%) agreed that computers were available for administrative purposes, 7 (10.0%) were uncertain, 18 (25.7%) disagreed and 12 (17.1%) strongly disagreed. The statement recorded a mean of 3.06 and a standard deviation of 1.39, indicating a moderate level of agreement, but with considerable variation among respondents. This shows that some schools had computers for management activities but the availability was not uniform in all institutions. The findings can be explained by Diffusion of Innovations Theory by Rogers (2023). This theory states that the adoption of innovations depends on variables such as accessibility, compatibility and perceived usefulness. Schools with sufficient digital infrastructure have a better chance of integrating technology into communication processes. The results support Wanjala (2023) who observed that the use of ict tools improved managerial communication and coordination in public schools but pointed out that digital resources' unequal access still remained a major obstacle.

The reliability of internet access was also studied as an important element of digital communication. Based on the results, 13 (18.6%) teachers strongly agreed and 19 (27.1%) agreed with the reliability of the internet access while 8 (11.4%) were not sure, 19 (27.1%) disagreed and 11 (15.7%) strongly disagreed. For this statement, the mean was 3.06 and the standard deviation was 1.37. This means there was moderate agreement but there were differences in how the respondents experienced it. The results indicate that internet access was available in some schools but was inconsistent, affecting the efficiency of digital communication. According to the Technology Acceptance Model (TAM), the perceived usefulness and perceived ease of use are the

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core determinants of technology adoption. Poor connectivity reduces their willingness to depend on digital systems. This finding agrees with Mukumana (2023) who reported that digital communication platforms enhanced school-parent communication but connectivity challenges limited full participation.

Digital platforms were found to facilitate communication among staff in schools. Of the 70 teachers, 16 (22.9%) strongly agreed and 22 (31.4%) agreed that the digital platforms enhanced communication between staff. Nine teachers (12.9%) were not sure, 14 (20.0%) disagreed and 9 (12.9%) strongly disagreed. The statement with the highest mean among the first indicators was 3.31 by the standard deviation of 1.32, which indicates that the perceptions of the teachers are generally positive. Results indicate that staff were able to share information faster using platforms like messaging apps, email and online systems. This can be seen as evidence that digital platforms become integrated when users realise their relative advantage over traditional communication methods, through Diffusion of Innovations Theory (Rogers, 2023). This finding is consistent with Johnson et al. (2022) who found that digital platforms enhanced transparency, teamwork and instructional leadership amongst Australian school leaders.

Communication with parents through digital platforms 14 (20.0%) teachers strongly agreed and 21 (30.0%) teachers agreed that through digital communication parents were reached, while 8 (11.4%) teachers were unsure, 15 (21.4%) teachers disagreed and 12 (17.1%) teachers strongly disagreed. Mean score was 3.14 (standard deviation 1.43) suggesting moderate agreement and variation between schools. The findings indicate that digital communication has improved stakeholder engagement, though some parents may have faced barriers such as access, technological literacy, or connectivity. The Unified Theory of Acceptance and Use of Technology (UTAUT) suggests that facilitating conditions, such as access to resources and technical support, impact actual use of technology . These results are consistent with the findings of Karsenti and Parent (2021) who found that digital platforms improve transparency, parental involvement and the flow of information but highlighted the need for inclusive ICT policies.

The findings also revealed that the use of digital resources enhanced information sharing among school stakeholders. The findings show that 24.3% (17) teachers strongly agreed that digital resources enhanced information sharing, 34.3% (24) agreed, 14.3% (10) were not sure, 18.6% (13) disagreed, and 8.6% (6) strongly disagreed. The mean of the statement was 3.49 and the standard deviation was 1.26, showing that the respondents had fairly high agreement and fairly low variability. This demonstrates that the digital technologies were effective in enhancing access to school information in a timely manner. Better communication is the perceived benefit that facilitates further adoption of digital devices according to Diffusion of Innovations Theory (Rogers, 2023). This is in agreement with Gachau and Kimani (2022) who found that digital platforms facilitated timely information sharing and collaborative decision making among school stakeholders.

Online systems also reduce the delays in communication. The findings revealed that 16 (22.9%) teachers strongly agreed, 23 (32.9%) agreed, 7 (10.0%) were uncertain, 18 (25.7%) disagreed and 6 (8.6%) strongly disagreed. The mean score was 3.36 and the standard deviation

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was 1.31 indicating that the digital systems were generally perceived by the respondents as improving the communication speed. However, the extent of disagreement suggests that some schools still had problems with accessing or using online communication systems appropriately. The Technology Acceptance Model holds that users are more likely to adopt technologies if they believe the technologies enhance task performance. This is consistent with Adebayo and Adesoji (2021) who discovered that digital communication systems enhanced collaboration and information sharing, but were constrained by infrastructure issues.

The teachers' opinions were divided about the digital sharing of managerial notices. 10 (14.3%) strongly agreed and 18 (25.7%) agreed that managerial notices were shared digitally. 10 (14.3%) were uncertain, 17 (24.3%) disagreed and 15 (21.4%) strongly disagreed. The statement had a mean of 2.87 and standard deviation of 1.42 which indicates a lower level of agreement than other communication indicators. It implies that digital communication tools did exist but were not used regularly for official managerial communication. This could be due to incomplete innovation adoption due to limited training, resistance to change or inadequate institutional support as explained by Diffusion of Innovations Theory (Rogers, 2023). This finding is consistent with Wanjala (2023) who found that inadequate training and inconsistent ICT implementation were hindrances to effective digital integration.

Digital instruments were also felt to improve stakeholder feedback processes. The findings showed that 16(22.9%) strongly agreed and 25(35.7%) agreed while 9(12.9%) were not sure, 11(15.7%) disagreed while 9(12.9%) strongly disagreed. The average score was 3.43, with a standard deviation of 1.29, indicating positive perceptions among the respondents. This means that the digital communication platforms enhanced the opportunities for interaction and feedback between schools and stakeholders. This can be explained by the UTAUT model where performance expectancy and facilitating conditions influence the use of technology. These findings align with Johnson et al. (2022), who reported enhanced stakeholder engagement and team collaboration through digital leadership tools.

The results were relatively weaker for the electronic storage of communications records. Only 10 (14.3%) teachers strongly agreed and 16 (22.9%) agreed that communication records were stored electronically, 11 (15.7%) were not sure, 14 (20.0%) disagreed and 19 (27.1%) strongly disagreed. The average score of 2.77 and standard deviation of 1.48 indicates that adoption is limited and there is a high level of variation among schools. This shows that most schools were not fully utilising electronic record management systems. This is the slow adoption phase, as per the Diffusion of Innovations Theory (Rogers, 2023). Organisations might recognise the value of innovation but lack the resources or readiness. This observation corresponds to the findings of Adebayo and Adesoji (2021) who noted infrastructure challenges as hindrances to the management of digital records.

Finally, digital instruments were seen to enhance coordination among stakeholders. The results showed that 14 (20.0%) and 24 (34.3%) strongly agreed and agreed respectively, whereas 9 (12.9%) was uncertain and 12 (17.1%) and 11 (15.7%) disagreed and strongly disagreed respectively. The mean and standard deviation of the statement was 3.26 and 1.38 respectively

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indicating moderate agreement. This suggests digital instruments have contributed to improving coordination, but need to be further strengthened to achieve consistent effectiveness. The Technology Acceptance Model argues that continued use is based on users' perception that technology enhances their work outcomes. The finding corroborates that of Gachau and Kimani (2022) who established that digital communication tools improved collaboration but recommended continuous capacity building and investment in ICT infrastructure.

Generally, the results show that the use of digital resources has enhanced the effectiveness of communication in public junior schools in Muhoroni Sub-County in sharing of information, communication among staff, feedback and coordination between stakeholders. But there are still obstacles to fully reaping the benefits of digital integration, such as the availability of infrastructure, the reliability of the Internet, digital skills and uneven adoption. Therefore, the findings suggest that in an effort to improve school management communication, it is essential to improve the digital infrastructure, strengthen the training programs and ensure supportive ICT policies.

The quantitative findings from Table 5 revealed that the use of digital resources had a positive effect on communication effectiveness. Teachers reported that staff communication was made easy by digital platforms, with 16 (22.9%) strongly agreeing and 22 (31.4%) agreeing, with a mean score of 3.31 (SD = 1.32). Likewise, digital resources for improvement of information sharing were rated highest, with 17 (24.3%) strongly agree and 24 (34.3%) agree, with a mean of 3.49 (SD = 1.26). These findings were supported by Heads of Institutions (HOI 1–HOI 9) who indicated that digital resources improved communication between administrators, teachers, parents and other stakeholders. They said that platforms like WhatsApp groups, emails and electronic reporting systems had reduced delays in information dissemination and coordination. The Heads of institutions noted that the effective use was affected by inadequate devices, unreliable internet connectivity and differences in digital skills. The results of the observation indicated disparities in the availability of computers and internet facilities, while the document analysis showed that some schools had implemented digital communication records and electronic reporting systems. One Head of Institution explained:

> Digital devices have changed the way we communicate within the school; information that would have taken days to get to teachers and parents can now be shared instantly through online platforms. However, the efficacy of these systems is dependent on whether teachers have access to the devices, know how to use them, and whether the internet connection is stable. In some cases we still use digital communication mixed with traditional methods because not everybody is equally ready to use technology (HOI 3, personal communication, August 26, 2026).

This also supports the quantitative results and gives an explanation for the moderate but positive responses of teachers about the effectiveness of digital communication. Digital instruments improved information sharing and staff communication as shown in Table 5. The differences in

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responses were related to differences in infrastructure and readiness of the users. This was further supported by the observation guide which found differences in the availability of ICT equipment among schools. Document analysis also revealed that schools with established digital systems had better communication structures. The results suggest that the successful integration of digital resources requires that their availability be associated with training and institutional support.

Quantitative results indicated that digital integration improved stakeholder communication but some areas were underdeveloped. A total of 14 (20.0%) strongly agreed and 24 (34.3%) agreed that the use of digital resources improved coordination among stakeholders, with a mean score of 3.26 (SD = 1.38). However, electronic storage of communication records was met with a much poorer response, with 10 (14.3%) strongly agreeing and 16 (22.9%) agreeing, while 19 (27.1%) strongly disagreed, giving a mean of 2.77 (SD = 1.48). The QASOs said that though schools were utilising digital communication tools more, the application varies according to ICT infrastructure, teacher competence and the availability of technical support. They saw some schools were doing well in implementing digital systems for reporting and communication, while some were still doing it manually. The observation findings confirmed the differences in the digital infrastructure. The document analysis revealed differences in the practices of electronic record management between schools. These results support the Technology Acceptance Model that suggests that technology adoption is dependent on perceived usefulness and ease of use (Davis, 1989). One QASO explained:

> Schools have made progress in implementing digital tools to communicate and manage administration, particularly when teachers and administrators have the support they need. However, there are still challenges as some schools do not have the right equipment, there is inconsistent internet connectivity and some users need more training before they can confidently use digital systems. Therefore, digital integration must be viewed as a continuous process, requiring investment, monitoring and capacity building, and not merely the provision of technology (QASO 1, personal communication, August 26, 2026).

The QASO's statement explains the mixed quantitative results shown in Table 5. While the teachers generally agreed that digital resources improved communication, the lower mean score for electronic record storage indicates that some aspects of digital management are still limited. The results show that mere availability of digital is not enough for effective utilisation unless technical support and user capacity is reinforced in schools. This finding is consistent with Adebayo and Adesoji (2021) who indicated that digital instruments improved managerial communication but were hindered by unstable infrastructure and poor ICT skills.

The quantitative results in Table 5 showed that digital resources positively affected the efficiency of communication in the management of schools. Results Teachers also reported that online systems reduced delays in communication 16 (22.9%) strongly agree and 23 (32.9%) agree with a mean score of 3.36 (SD = 1.31). The SCDE confirmed these findings by showing that digital integration had improved communication between schools, education offices and stakeholders

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through faster reporting, better monitoring and efficient dissemination of information. The SCDE however noted disparities in school readiness, internet access and digital skills affected the extent to which institutions implemented. Observation findings supported these concerns, showing differences in digital infrastructure among schools. Document analysis revealed increasing adoption of electronic reporting and communication systems. The results are consistent with the Unified Theory of Acceptance and Use of Technology (UTAUT) in that facilitating conditions, institutional support and user confidence are important to technology adoption (Venkatesh et al., 2003). The SCDE said:

> Now schools and education offices are better communicating because reports, feedback and important information can be shared faster than before due to digital integration. But schools are not on the same level, some have better ICT facilities and stronger digital skills in their staff members. To enable digital systems to serve their intended purpose, schools need continuing support, stable connectivity and regular training so that all stakeholders are able to engage effectively. (SCDE, personal communication, September 1, 2026)

The perspective of the SCDE also explains the quantitative results by confirming benefits and limitations of digital integration. The positive answers regarding information sharing and reduced communication delays show the effectiveness of digital resources, and the identified challenges explain the moderate scores obtained in several indicators. Findings from the observation and document analysis also supported the observation that digital adoption was taking place, albeit unevenly across schools. The finding is consistent with Mukumana (2023) who found that digital communication enhanced school-community engagement but required robust infrastructure and digital inclusion strategies.

The researcher's observation and document analysis revealed that public junior schools in Muhoroni Sub-County had made some strides toward the integration of digital resources to facilitate communication and school management functions though the level of uptake was not uniform across institutions. The observation guide revealed that some schools had computers, smartphones, internet-enabled devices and digital communication platforms which were used for administrative communication, staff coordination and stakeholder engagement. However, there were differences in the availability, functionality and accessibility of digital resources, including limited devices, unreliable internet connectivity and insufficient technical support in some schools.

The document analysis also substantiated a slow drift to digital records, electronic reports, online platforms for communication and digital notices for the circulation of administrative information in schools. However, there were some schools that still relied on paper-based records and traditional communication methods, suggesting that the integration of digital technologies was at different stages of implementation. These findings are in line with the quantitative results in Table 5 which found positive perceptions of digital devices for improving information sharing (Mean = 3.49, SD = 1.26) and staff communication (Mean = 3.31, SD = 1.32), but weaker adoption of electronic record storage (Mean = 2.77, SD = 1.48). Thus, the observation and document

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evidence show that digital resources have improved the effectiveness of communication, but there is a need for continued investment in infrastructure, training and technical support to guarantee consistent digital integration in all schools.

Conclusion

The study concludes that the availability of digital tools plays a significant role in enhancing the effectiveness of communication as a management function among managers and stakeholders in Muhoroni Sub-County, Kisumu County, Kenya. Accessible and reliable digital platforms improve information sharing, coordination, feedback mechanisms, stakeholder engagement, and timely decision-making. However, the effectiveness of digital communication depends on factors such as accessibility, digital skills, infrastructure, and organizational support. The study further concludes that digital tools should be viewed not only as technological resources but also as strategic communication mechanisms that strengthen managerial efficiency and institutional relationships. Effective utilization of digital tools therefore contributes to improved communication processes and better achievement of organizational goals.

Recommendations

The study recommends that organizations and institutions in Muhoroni Sub-County invest in adequate and reliable digital communication infrastructure to enhance accessibility and efficiency in information exchange. Managers and stakeholders should receive continuous digital literacy training to strengthen their ability to effectively utilize available digital platforms for communication, collaboration, and decision-making. Institutions should also establish clear digital communication policies that guide the appropriate use of technology, data security, and stakeholder engagement practices. Additionally, management should provide technical support and regularly evaluate the effectiveness of digital communication systems to address emerging challenges. These interventions will promote effective communication, strengthen stakeholder relationships, and improve overall management performance.

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