UNIVERSITY OF MEDIA, ARTS AND COMMUNICATION (UniMAC)

THE ROLE OF PARTICIPATORY COMMUNICATION IN ENHANCING STUDENT PARTICIPATION IN INSTITUTIONAL DEVELOPMENT: A CASE OF UNIMAC-IJ

BY

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DECLARATION

DECLARATION BY STUDENT- DISSERTATION

I hereby declare that this research is a result of my own original research and that, no part of it has been presented for another degree in this university or any other higher education institute. I further declare that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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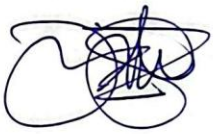
	MADC24083		10/12/25

SUPERVISOR'S CERTIFICATION

I hereby certify that the preparation of this dissertation was supervised by me in accordance with the guidelines of supervision of dissertation laid down by the University of Media, Arts and Communication UniMAC-IJ.

DR. ALBERT JAMES TAYMAN

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ABSTRACT

Sanitation management is a crucial component of facility management in universities, directly shaping health, productivity, and institutional reputation. At UniMac-IJ, recurring sanitation crises such as blocked washrooms, water shortages, and delayed waste disposal expose significant weaknesses in crisis communication and user engagement. This study examined how crisis communication practices and participatory strategies influence sanitation outcomes, with a focus on identifying common challenges, evaluating communication systems, and exploring user involvement in sanitation governance.

A mixed methods approach was employed, integrating quantitative surveys with 360 respondents and qualitative interviews with 15 key informants, including facility managers, sanitation supervisors, and student leaders. Data were collected through structured questionnaires and semi-structured interviews, analyzed using SPSS for statistical patterns and NVivo for thematic insights. Ethical standards—including informed consent, confidentiality, and Institutional Review Board approval—were strictly adhered to, ensuring methodological rigor.

Findings revealed that communication practices at UniMac-IJ were largely reactive, fragmented, and inconsistently applied, despite student preference for channels such as WhatsApp, SMS alerts, and noticeboards. User participation in decision-making remained minimal, though both staff and students expressed readiness to engage through feedback platforms and joint committees. The study concludes that weak crisis communication and limited user involvement exacerbate sanitation challenges, recommending a participatory framework that integrates digital reporting tools, real-time messaging systems, and structured dialogue mechanisms. These insights extend the literature on facility management and provide a practical model for strengthening resilience, inclusivity, and sustainability in tertiary institutions.

Keywords: Sanitation Management, Crisis Communication, User Engagement, Facility Management,

Unimac-Ij, Participatory Governance

DEDICATION

This thesis is dedicated to my family and friends.

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

Chapter One of the study outlines the background, problem context, and rationale for exploring crisis communication and user engagement in facility management, with a specific focus on addressing sanitation challenges at UniMac-IJ. It presents the research problem, objectives, and key questions guiding the investigation. The chapter also defines the scope of the study, highlights its significance in improving institutional sanitation governance, and concludes with an overview of the study's structure. Through this framework, the chapter establishes a foundation for understanding how effective communication and participatory approaches can enhance sanitation outcomes in higher education institutions.

1.1 Background of the Study

Facility management encompasses a diverse set of integrated services aimed at ensuring the functionality, comfort, safety, and efficiency of the built environment. These services include sanitation, infrastructure maintenance, waste management, and space planning (Alabi & Uwaezuoke, 2021). In the context of higher education institutions, effective facility management is crucial not only for the upkeep of physical assets but also for the overall well-being and academic performance of students and staff. Among these services, sanitation plays a particularly vital role, given its direct implications for health, hygiene, and institutional reputation (Appiah et al., 2020; Murphy et al., 2009).

In universities, sanitation is more than just a technical issue—it is also a social, managerial, and communicative challenge. Sanitation-related disruptions, such as clogged toilets, water shortages, or broken drainage systems, often demand urgent response mechanisms and require transparent communication between facility managers and the user community. Without appropriate crisis communication systems, such disruptions can spiral into health risks or public discontent (Smithwick et al., 2023). Adewunmi-Abolarinwa (2024) underscores the importance of strategic communication structures that involve users in decision-making processes to foster a sense of ownership and prompt behavioral change.

Universities in Ghana face significant hurdles in achieving optimal sanitation standards due to multiple interrelated challenges. These include inadequate budgets for sanitation infrastructure, overutilization of existing facilities, user negligence, and absence of structured feedback mechanisms between students and facility management units (Nyikuri et al., 2015; Onyango, 2024). In particular, public universities tend to experience sanitation crises during periods of high activity—such as examination weeks or residential admissions—when pressure on facilities peaks (Appiah et al., 2020).

UniMac-IJ (University of Media, Arts and Communication–Institute of Journalism) exemplifies a higher education institution facing such sanitation vulnerabilities. Located in an urban setting with constrained space and infrastructure, the university frequently encounters challenges related to poor waste disposal, inadequate restroom facilities, and inconsistent water supply. These conditions are exacerbated by population density, which intensifies usage without a proportional increase in maintenance capacity (Sandison, 2019).

Studies highlight a notable disconnect between users and managers during sanitation-related emergencies at institutions like UniMac-IJ. For instance, users are often left uninformed during plumbing breakdowns or maintenance delays, resulting in frustration, misinformation, and inaction

(Kastner et al., 2021). Additionally, there is little evidence of systematic platforms—digital or otherwise—for user feedback on sanitation issues, limiting the institution's capacity to develop user-informed solutions (Panagiotopoulos et al., 2015). This gap creates a reactive rather than preventive culture in sanitation management.

To address these challenges, there is a need for robust crisis communication models and participatory engagement frameworks tailored to the context of academic institutions in Ghana. Murphy et al. (2009) and Coombs (2007) argue that effective crisis communication must be timely, audience-specific, and supported by institutional leadership. By integrating students and staff into sanitation governance—through feedback loops, digital reporting systems, or sanitation committees—universities like UniMac-IJ can foster resilience and sustainability in facility management (Fehnert et al., 2021).

1.2 Statement of the Problem

Although sanitation infrastructure exists at UniMac-IJ, its reliability is inconsistent, particularly during peak academic periods. Common issues such as blocked toilets, water outages, and plumbing failures recur frequently, threatening user health, dignity, and academic focus (Twum-Bobie et al., 2025; Onyango, 2024). While the physical infrastructure is present, its management and responsiveness are often suboptimal.

A core weakness lies in the lack of structured crisis communication. During sanitation emergencies, users—mainly students—are rarely informed about causes, repair timelines, or alternative options, leading to confusion, mistrust, and even panic (Coombs, 2007; Appiah et al., 2020). As Heath and

O'Hair (2009) emphasize, effective crisis communication must be timely, transparent, and user-sensitive.

Moreover, UniMac-IJ lacks a digital reporting or feedback system for sanitation issues. Without real-time user input, faults often go unresolved until they escalate into major crises (Chatzikonstantinidis et al., 2024; Fehnert et al., 2021). This exclusion of users also weakens institutional trust and user responsibility (Sandison, 2019; Adewunmi-Abolarinwa, 2024).

Studies show that institutions integrating participatory engagement strategies—like feedback apps or sanitation committees—respond more efficiently and sustainably (Panagiotopoulos et al., 2015; Porter, 2024). Without such reforms, UniMac-IJ risks reputational damage, declining student satisfaction, and operational inefficiencies (Murphy et al., 2009; Kastner et al., 2021). Adopting low-cost tools like WhatsApp alerts, QR-code feedback, and crisis training for staff can significantly strengthen resilience and collaboration (Smithwick et al., 2023; Coombs, 2007).

1.3 General Objective

To assess how crisis communication and user engagement practices influence the management of sanitation challenges at UniMac-IJ.

1.3.1 Specific Objectives

1. To identify the common sanitation challenges encountered at UniMac-IJ.
2. To evaluate the effectiveness of crisis communication practices during sanitation emergencies.

3. To examine the role of user engagement in sanitation-related decision-making.
4. To propose a responsive, participatory communication framework for facility management at UniMac-IJ.

1. 4 Research Questions

1. What sanitation-related crises occur frequently at UniMac-IJ?
2. How are sanitation-related crises currently communicated and managed?
3. What mechanisms exist for user engagement in sanitation management at UniMac-IJ?
4. What improvements can be made in crisis communication and engagement to enhance sanitation outcomes?

1.5 Scope of the Study

This study is geographically and institutionally confined to the University of Media, Arts and Communication – Institute of Journalism (UniMac-IJ), focusing on its main campus located in Accra, Ghana. The research primarily examines sanitation-related infrastructure—specifically washrooms, drainage systems, and waste disposal mechanisms—which have been identified as critical stress points within the institution's broader facility management framework. These systems are evaluated not only in terms of physical adequacy and functionality but also in terms of their maintenance, management, and reliability during both routine operations and crisis events. Situated in an urban environment with high population density, UniMac-IJ's sanitation infrastructure faces constant

pressure, making it a relevant setting for assessing institutional resilience, preparedness, and crisis responsiveness.

In line with the broader academic context, the study also considers the institutional environment, including how the campus layout and population dynamics influence sanitation system usage and vulnerability. Additionally, while the core focus is on physical infrastructure and communication systems, the study touches upon how sanitation challenges impact curriculum delivery and content access—for example, how disrupted sanitation may affect class attendance, faculty working conditions, or access to teaching and learning spaces. Thus, the learning environment and instructional continuity become secondary but essential concerns when sanitation breakdowns disrupt normal academic activities.

To offer a well-rounded perspective, the study adopts a dual-lens approach—examining both management and user experiences. From the management side, it evaluates how facility administrators organize sanitation resources, communicate during crises, and uphold maintenance protocols. From the user side, it explores how students, lecturers, and support staff experience and respond to sanitation issues, particularly during emergencies. Special emphasis is placed on the flow of information and feedback loops between management and users, examining tools like digital reporting platforms, notice systems, and crisis alerts.

Lastly, by linking sanitation governance to broader themes such as campus facilities, content delivery, and environmental health, the study extends beyond operational concerns to explore how effective sanitation management contributes to a safe, functional, and academically enabling environment. In doing so, it captures both the structural and social dimensions of facility management and positions sanitation not only as a technical issue but as one that is deeply embedded in the academic life and institutional culture of UniMac-IJ.

1.6 Significance of the Study

This study contributes meaningfully to the growing field of educational facility management by addressing the crucial intersection between infrastructure maintenance and crisis communication, particularly in sanitation management. Sanitation is often treated as a peripheral concern, yet it has significant implications for student health, institutional image, and learning outcomes. By focusing on UniMac-IJ, the study brings to light how crisis events—such as blocked washrooms or waste overflows—are handled from a communication standpoint, and how inclusive such strategies are. As highlighted by Heath and O'Hair (2009), effective crisis communication requires timely, audience-specific messaging, while Fehnert et al. (2021) stress that infrastructure must be co-designed or co-managed with user input to ensure long-term usability. This study supports both positions by showing how neglect in communication and user engagement can exacerbate even small infrastructure issues into full-blown crises.

Moreover, the study's findings have practical implications for institutional policy and crisis management strategies beyond UniMac-IJ. It provides a replicable model for other Ghanaian and West African tertiary institutions that face similar sanitation and infrastructure constraints. By proposing real-time digital reporting tools, participatory sanitation review committees, and structured communication frameworks, the research enhances the discourse on sustainable and inclusive facility management in resource-constrained environments (Onyango, 2024; Porter, 2024). In an era marked by pandemics and increasing urban overcrowding, institutional resilience hinges on the ability to respond swiftly and inclusively to infrastructure failures (Kasana et al., 2023; Sigala, 2020). Strengthening the communication loop between users and facility managers not only improves hygiene and safety but also builds trust and shared responsibility within the university community (Murphy et al., 2009; Coombs, 2007).

1.7 Organization of the Study

This study is structured into five comprehensive chapters, each serving a distinct role in addressing the research problem and achieving the outlined objectives. The organization is designed to guide the reader from the conceptual foundation of the study to its empirical findings and practical implications, ensuring a coherent and logical progression of thought.

Chapter One provides the foundation of the study. It introduces the research topic, contextualizes the sanitation challenges at UniMac-IJ, and outlines the scope, significance, and objectives of the study. It also presents the guiding research questions and explains the rationale behind focusing on crisis communication and user engagement as critical components in facility management. This chapter sets the tone for the investigation and articulates the problem statement and intended contributions of the research.

Chapter Two is devoted to the literature review. It synthesizes existing scholarly works on facility management, crisis communication, sanitation infrastructure in higher education, and participatory governance in public service delivery. The chapter identifies theoretical gaps, critically examines relevant models such as Coombs' Situational Crisis Communication Theory (SCCT), and situates the present study within a broader academic and regional context.

Chapter Three outlines the research methodology. It explains the research design, sampling methods, data collection tools (surveys, interviews, and document analysis), and analytical techniques employed in the study. The chapter also addresses ethical considerations and limitations, ensuring that the study adheres to rigorous academic standards and ethical research practices.

Chapter Four presents the data analysis and findings. It provides a detailed account of the sanitation challenges faced at UniMac-IJ, the effectiveness of existing crisis communication systems, and the

level of user engagement in facility management processes. Quantitative and qualitative data are analyzed to draw patterns, correlations, and insights that inform the study's objectives.

Chapter Five concludes the study by summarizing key findings, discussing their implications, and proposing actionable recommendations for UniMac-IJ and similar institutions. It also suggests areas for future research, particularly in the development of integrated digital platforms for user feedback and emergency communication in facility management systems.

This structure ensures a systematic exploration of the research problem, from conceptualization to evidence-based conclusions, making the study both academically rigorous and practically relevant.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter explores the theoretical and empirical foundations of the study, highlighting relevant frameworks, concepts, and previous research that inform the current investigation. The focus is to understand how crisis communication and user engagement strategies can be integrated into facility management to address sanitation issues within a university setting. The review begins with a discussion of two core theories, their relevance to the study, a comprehensive review of related literature, a conceptual framework, operational definitions, and a summary of key insights that guide the research methodology.

2.1 Theoretical Review

2.1 Theoretical Review

This study adopts two theories to provide a conceptual foundation for analyzing the effectiveness of communication strategies in sanitation management: Situational Crisis Communication Theory (SCCT) and Participatory Communication Theory (PCT). Both theories have been widely applied in public health, development communication, and organizational crisis management, making them suitable for understanding sanitation-related challenges in Ghana.

2.1.1 Situational Crisis Communication Theory (SCCT)

The Situational Crisis Communication Theory, developed by Coombs (2007), posits that organizations must adopt communication strategies that align with the level of responsibility attributed to them during a crisis. SCCT argues that crises are inevitable, but their impact depends on how institutions frame their messages, accept responsibility, and select appropriate response strategies. By categorizing crises into victim, accidental, and preventable clusters, SCCT provides a framework for tailoring communication responses to maintain or restore stakeholder trust. This theoretical lens is vital for sanitation challenges, where government agencies and municipal authorities are often scrutinized during waste management failures.

In applying SCCT to sanitation crises, scholars argue that poor waste management often leads to outbreaks of diseases such as cholera and typhoid, situations where the public assigns responsibility to institutions (Ayee & Crook, 2003; Songsore et al., 2013). For instance, when indiscriminate dumping leads to flooding in Accra, the public perceives it as a preventable crisis attributable to weak enforcement and ineffective communication. SCCT provides a way to examine how institutions frame messages during such crises—whether they deflect blame, accept responsibility, or provide corrective action—and the consequences of these strategies for public compliance and trust.

Furthermore, SCCT emphasizes that communication in crises is not only reactive but also preventative. Proactive communication, including early warnings, stakeholder engagement, and transparent information-sharing, reduces the likelihood of crises escalating into reputational disasters (Coombs, 2015). In the Ghanaian sanitation context, this suggests that municipal authorities must adopt proactive strategies to avoid crises of credibility. Thus, SCCT is highly relevant to this study

because it links communication strategies to the dynamics of accountability and trust during sanitation management failures.

2.1.2 Participatory Communication Theory (PCT)

Participatory Communication Theory, articulated by Servaes (1999), shifts focus from top-down communication models to bottom-up approaches that emphasize dialogue, collaboration, and community ownership of development solutions. PCT argues that communication should not merely transmit information but should empower communities to articulate their own needs, priorities, and solutions. This is particularly relevant for sanitation, which requires behavioral change and collective responsibility that cannot be achieved without local involvement.

In sanitation management, PCT has been widely used to explain why community-driven initiatives often outperform centralized strategies. For example, Gumucio-Dagron (2001) demonstrated how participatory communication frameworks in Latin America improved waste management by fostering ownership and accountability at the community level. Similarly, Mosler (2012) highlighted that sanitation campaigns incorporating dialogue and cultural sensitivity in East Africa led to higher adoption rates of hygienic practices compared to directive, top-down interventions. These examples demonstrate that participatory approaches are more effective in changing behaviors and sustaining long-term improvements in sanitation.

Applied to Ghana, PCT provides a lens for understanding how cultural attitudes, socioeconomic conditions, and perceptions of responsibility influence sanitation practices. Research shows that many Ghanaians view waste disposal as an individual rather than communal responsibility (Boadi &

Kuitunen, 2005), making participatory engagement essential. By incorporating community voices into policy and program design, communication strategies become more culturally appropriate and socially sustainable. Therefore, PCT is central to this study as it emphasizes empowerment, dialogue, and shared ownership in tackling sanitation crises.

2.2 Relevance of Theories to the Study

The Situational Crisis Communication Theory (SCCT) is particularly relevant to sanitation management because sanitation failures often escalate into crises that threaten both public health and institutional credibility. SCCT asserts that the effectiveness of a crisis response depends on how responsibility is communicated and the strategies employed to restore trust (Coombs, 2007, 2015). In Ghana, outbreaks of cholera and other sanitation-related diseases highlight how delayed or poorly framed communication by municipal authorities undermines public confidence (Songsore et al., 2013). For example, when the Accra Metropolitan Assembly fails to provide timely information during flooding events, residents perceive the crisis as a preventable failure, intensifying blame (Ayee & Crook, 2003). SCCT provides a framework for understanding how institutions can adopt strategies such as corrective action, transparency, and responsibility acknowledgment to protect their reputations and ensure compliance during sanitation crises (Coombs & Holladay, 2012).

The Participatory Communication Theory (PCT), in contrast, emphasizes that communication is most effective when communities actively engage in identifying problems and shaping solutions (Servaes, 1999). This theory is essential for sanitation management, where behavioral change depends on dialogue, cultural sensitivity, and shared ownership of practices (Gumucio-Dagron, 2001). Studies in Sub-Saharan Africa demonstrate that top-down sanitation campaigns often fail

because they ignore the socio-economic and cultural realities of communities (Boadi & Kuitunen, 2005; Mosler, 2012). In Ghana, for example, residents' perceptions that waste disposal is a personal rather than communal responsibility weaken compliance with centrally imposed rules (Oduro-Appiah et al., 2020). PCT provides a framework for designing communication strategies that empower residents, involve civil society actors, and create culturally relevant solutions that are more likely to be sustained.

Together, SCCT and PCT offer complementary insights into sanitation communication. SCCT highlights the necessity of responsive, transparent, and accountable communication strategies during crises, ensuring that institutions can mitigate reputational damage and foster compliance (Coombs, 2015). PCT, on the other hand, underscores the importance of preventive and inclusive approaches that empower communities and sustain long-term behavioral change (Servaes, 2008). By integrating both perspectives, this study situates sanitation communication as both a crisis management tool and a participatory development process, offering a holistic framework for understanding how Ghanaian institutions and communities can collaboratively address sanitation challenges.

2.3 Review of Related Literature

2.3.1 Institutional Failures and Sanitation Challenges

In a study conducted by Ayee and Crook (2003) titled *"Toilet Wars: Urban Sanitation Services and the Politics of Public–Private Partnerships in Ghana,"* the authors examine the institutional weaknesses underlying sanitation challenges in Accra. They found that poor coordination between municipal authorities and private contractors often resulted in inefficiencies, leaving communities vulnerable to waste accumulation. The study emphasized that weak institutional frameworks and

poor communication channels prevented effective stakeholder collaboration. This aligns with SCCT's assertion that crises often emerge when institutions fail to anticipate and manage risks appropriately.

The study also revealed that the lack of transparency in communication between public officials and citizens fostered mistrust. Communities often perceived sanitation failures as deliberate neglect rather than systemic challenges, which heightened tensions during crises. This highlights how perceptions of responsibility—central to SCCT—shape the public's reactions to sanitation problems.

Finally, Ayee and Crook (2003) argued that sustainable sanitation requires more than infrastructure; it requires effective communication strategies that build trust between institutions and communities. Their findings provide evidence for integrating both SCCT and PCT into this study, showing that accountability and participation are essential drivers of success in sanitation management.

2.3.2 Cultural Perceptions and Waste Practices

In another study, Boadi and Kuitunen (2005) titled *"Environmental and Health Impacts of Household Solid Waste Handling and Disposal Practices in Third World Cities: The Case of Accra Metropolitan Area, Ghana,"* the authors explore how socio-cultural practices influence waste disposal. They found that many households in Accra disposed of waste indiscriminately due to cultural perceptions that sanitation was a private responsibility rather than a communal one. This created systemic challenges for waste management authorities, as collective compliance was limited.

The study revealed that communication campaigns focusing only on rules and penalties failed to achieve compliance because they ignored cultural attitudes and socio-economic barriers. For instance, low-income households often lacked access to waste bins, making indiscriminate dumping

a rational choice. This aligns with PCT, which stresses that effective communication must consider the lived realities of communities rather than impose solutions externally.

Boadi and Kuitunen (2005) concluded that participatory approaches—such as involving community leaders in sanitation campaigns—were more effective in shaping behaviors. Their findings support the argument that top-down strategies alone are insufficient for addressing Ghana's sanitation crisis, thereby justifying the integration of PCT into this study.

2.3.3 Community Engagement in Sanitation Campaigns

A related study by Gumucio-Dagron (2001), *"Making Waves: Stories of Participatory Communication for Social Change,"* examined the role of participatory communication in sanitation and health campaigns across Latin America. The study documented cases where communities actively co-created messages and campaigns, resulting in higher compliance with sanitation practices. By fostering dialogue, these campaigns empowered residents to see sanitation as a shared responsibility.

The study found that participatory communication also reduced resistance to sanitation interventions. Communities were more likely to adopt new practices when they felt included in the decision-making process. This reinforces PCT's principle that dialogue and ownership are essential for behavioral change.

Furthermore, Gumucio-Dagron (2001) argued that participatory communication was not just a tool for information dissemination but a process of empowerment. This perspective is highly relevant to Ghana, where mistrust of authorities often undermines sanitation campaigns. By applying PCT, this

study situates communication as a pathway for building ownership and accountability in waste management.

2.3.4 Crisis Communication in Sanitation Emergencies

In another study, Songsore et al. (2013) titled *"Urban Sanitation and the Ghanaian Cholera Epidemics: An Epidemiological Perspective,"* the authors analyze how poor sanitation and weak communication strategies contributed to recurring cholera outbreaks in Accra. They found that delayed responses and lack of transparency from authorities fueled public fear and mistrust, exacerbating the crisis.

The study applied principles consistent with SCCT, noting that government agencies often failed to accept responsibility or provide corrective communication, leading to reputational damage. Communities perceived the authorities as negligent, which undermined compliance with sanitation directives.

Songsore et al. (2013) concluded that crisis communication must be proactive, transparent, and accountable to prevent public health emergencies from escalating. Their findings underscore the importance of SCCT in guiding effective sanitation communication in Ghana.

2.3.5 Behavioral Change in Sanitation Practices

Finally, Mosler (2012) in *"A Systematic Approach to Behavior Change Interventions for the Water and Sanitation Sector in Developing Countries"* examined strategies for changing sanitation behaviors in East Africa. The study highlighted that interventions combining participatory approaches with culturally sensitive communication were more effective than directive campaigns.

Mosler (2012) found that behavioral change required addressing both motivational factors and structural barriers. For example, providing access to waste bins alongside participatory education campaigns led to higher adoption of proper waste disposal practices. This finding aligns closely with PCT, which emphasizes empowerment and contextualized dialogue.

The study concluded that long-term improvements in sanitation require integrating participatory approaches into policy design and communication strategies. For Ghana, this provides a roadmap for addressing sanitation crises by blending participatory communication with crisis communication strategies, as suggested by SCCT.

2.4 Conceptual Framework

1. Crisis Communication Flow

Crisis communication flow refers to how swiftly and clearly information is conveyed during sanitation emergencies within academic environments. According to Coombs (2007), the effectiveness of institutional responses depends significantly on how well crises are classified and how promptly they are communicated to stakeholders. At UniMac-IJ, frequent incidents such as blocked toilets, water shortages, or waste pileups demand real-time updates to users, which helps reduce panic and misinformation. Communication flow that is slow, inconsistent, or vague often leads to frustration and eroded institutional trust (Coombs & Holladay, 2010; Heath & O'Hair, 2009). Crisis communication must thus be structured, pre-planned, and delivered across multiple platforms including notices, SMS alerts, and digital dashboards (Twum-Bobie et al., 2025; Smithwick et al., 2023).

The flow of information during a crisis must also ensure transparency. Users need to know the cause of the issue, expected resolution timelines, and actions being taken. When communication is proactive and acknowledges user concerns, it builds institutional credibility and encourages constructive user cooperation (Kasana et al., 2023; Sandison, 2019). For instance, a blocked drainage system during examination weeks can create academic stress. Effective crisis communication would provide timely updates and possible alternatives such as nearby functional facilities. This is supported by Murphy et al. (2009), who emphasize that effective crisis flow is as much about calming emotions as it is about logistics. Furthermore, lack of feedback loops in crisis messaging often makes users feel excluded, intensifying complaints (Onyango, 2024; Porter, 2024).

In the context of UniMac-IJ, crisis communication flow is central to transforming the current reactive approach into a proactive, strategic response system. Incorporating principles from SCCT, tailored messages based on the crisis type (e.g., preventable or accidental) can significantly enhance trust and reduce backlash (Coombs, 2007; Kastner et al., 2021). Combining institutional announcements with participatory inputs from users through social media and notice boards can help bridge informational gaps (Fehnert et al., 2021; Chatzikonstantinidis et al., 2024). Ultimately, effective communication flow supports the study's objective of enhancing transparency and collaboration in sanitation governance at UniMac-IJ.

2. User Engagement

User engagement encompasses how actively students and academic staff participate in sanitation governance—from issue reporting to policy formulation. Participatory Communication Theory supports this dimension by advocating for shared ownership and two-way information flow between managers and users (Servaes, 1999). In the UniMac-IJ context, involving users in sanitation audits,

suggestion schemes, and facility planning workshops has the potential to create long-term behavioral change. Fehnert et al. (2021) found that user participation not only improves infrastructure usage but also reduces misuse and neglect. When students are empowered as stakeholders, they are more likely to respect and maintain the cleanliness of shared facilities (Onyango, 2024; Sandison, 2019).

Engagement must be inclusive, systematic, and representative. This means ensuring that both resident and non-resident students, faculty, and support staff are considered in sanitation decisions. Platforms like town halls, departmental sanitation reps, or feedback kiosks can make the engagement continuous rather than episodic (Appiah et al., 2020; Panagiotopoulos et al., 2015). A critical part of this process involves equipping users with information on their roles, responsibilities, and reporting procedures. Research shows that when users know their complaints will be acknowledged and acted upon, reporting rates rise (Kasana et al., 2023; Chatzikonstantinidis et al., 2024). Engagement also leads to innovation, as users can propose low-cost, high-impact solutions based on their experiences (Heath & O'Hair, 2009; Smithwick et al., 2023).

At UniMac-IJ, embedding user engagement into sanitation governance is not optional—it is essential. This approach supports the dual objectives of behavioral transformation and institutional responsiveness. Digital polls, sanitation clubs, and user co-design committees are potential tools for embedding engagement into the university's facility management system (Fehnert et al., 2021; Murphy et al., 2009). The study asserts that effective user engagement bridges the existing disconnect between institutional administrators and daily facility users, ensuring policies reflect real needs and context-based solutions.

3. Facility Reliability

Facility reliability refers to the consistent functionality of sanitation infrastructure—washrooms, waste disposal units, drainage systems—over time. In the context of UniMac-IJ, this involves regular maintenance schedules, prompt repairs, and infrastructure that matches campus population demands. According to Smithwick et al. (2023), unreliability in sanitation facilities is often a result of delayed maintenance, underfunding, and weak coordination between departments. Reliable facilities contribute to academic productivity, health safety, and overall institutional reputation (Adewunmi-Abolarinwa, 2024; Nyikuri et al., 2015). In contrast, breakdowns cause stress, reduce user compliance, and damage the institution's credibility.

The quality and consistency of facility services are also reflections of institutional commitment. Facilities that are unreliable due to systemic neglect indicate gaps in budget allocation, technical capacity, and leadership prioritization (Twum-Bobie et al., 2025; Fehnert et al., 2021). Students and staff interpret such failures as disregard for their wellbeing, leading to distrust and potential vandalism (Heath & O'Hair, 2009). Furthermore, unreliable systems force users to develop unsafe coping strategies—such as open defecation or using alternative unhygienic facilities—especially during emergencies (Porter, 2024; Chatzikonstantinidis et al., 2024). Thus, reliability is not merely technical—it is behavioral, social, and political.

Enhancing facility reliability at UniMac-IJ requires an integrated strategy that includes regular audits, budgeted maintenance cycles, and emergency repair teams (Kasana et al., 2023; Sandison, 2019). The study recommends tracking fault frequency and user reports through digital dashboards to pre-empt crises and reduce downtime. Training janitorial and facility staff in crisis protocols will also improve operational stability. In sum, ensuring facility reliability addresses not just physical infrastructure needs but also underpins the broader goals of user trust, institutional performance, and academic satisfaction (Appiah et al., 2020; Murphy et al., 2009).

4. Institutional Responsiveness

Institutional responsiveness measures how effectively and promptly facility management teams act on reported issues, especially during crises. At UniMac-IJ, sanitation issues often escalate because of slow or unclear response chains. Responsiveness includes initial acknowledgment of reports, timeline sharing, action-taking, and post-crisis follow-up. Kasana et al. (2023) emphasize that responsiveness shapes user perceptions of institutional integrity. Institutions that respond slowly risk appearing indifferent, which can lower morale and reduce future user cooperation (Coombs, 2007; Fehnert et al., 2021). Therefore, responsiveness is both a functional and relational dimension of crisis management.

A high level of responsiveness depends on systems capacity and leadership commitment. Institutions that invest in feedback processing, repair teams, and communication lines generally outperform others in crisis handling (Smithwick et al., 2023; Sandison, 2019). Responsiveness also includes transparency—keeping users informed about delays, repair progress, and changes in facility usage. Research shows that students are more patient with problems if they see visible efforts toward resolution (Murphy et al., 2009; Kastner et al., 2021). On the contrary, non-response creates rumor cycles and undermines any formal system of management (Adewunmi-Abolarinwa, 2024; Heath & O'Hair, 2009).

For UniMac-IJ, institutional responsiveness must be enhanced through digital ticketing systems, emergency response task forces, and performance accountability metrics. The study advocates for response KPIs tied to management evaluation frameworks, ensuring consistent motivation to act promptly (Nyikuri et al., 2015; Coombs & Holladay, 2010). By embedding responsiveness into institutional culture, UniMac-IJ can transform sanitation from a reactive burden to a proactive service

model. This will not only improve hygiene conditions but also boost institutional credibility, user satisfaction, and administrative accountability.

5. Digital Feedback Mechanisms

Digital feedback mechanisms refer to the use of ICT tools—mobile apps, SMS platforms, WhatsApp lines, QR codes—for users to report sanitation issues and track resolution. In the digital age, timely communication is key to resolving campus-wide sanitation concerns (Chatzikonstantinidis et al., 2024; Sandison, 2019). Traditional methods like logbooks or physical suggestion boxes are outdated, inaccessible, and often ignored. Digital platforms allow real-time updates, multimedia issue reporting (photos/videos), and automatic categorization of complaints (Smithwick et al., 2023; Kasana et al., 2023). They also improve data management and accountability.

Implementing digital systems democratizes sanitation governance by giving voice to every user, regardless of rank or location. For instance, students in remote campus blocks can report water issues without physically visiting the facility office. Fehnert et al. (2021) note that such systems also increase transparency, as users can track the status of their complaints. In contexts where resource constraints are common, digital systems allow better prioritization based on reported issue frequency or severity (Appiah et al., 2020; Onyango, 2024). The digital trail also aids in institutional memory and reporting, supporting evidence-based budgeting and planning (Coombs, 2007; Murphy et al., 2009).

At UniMac-IJ, the adoption of mobile-based sanitation feedback platforms can revolutionize facility management. This study recommends simple, user-friendly systems compatible with low-end phones, given the socioeconomic context. Training and regular feedback summaries can increase

adoption and institutional learning (Heath & O'Hair, 2009; Twum-Bobie et al., 2025). By using digital tools, UniMac-IJ can enhance not just user satisfaction but also create a transparent, accountable, and data-driven sanitation governance framework—core to the success of this research intervention.

2.5 Operationalization Of Key Terms And Concepts

Crisis Communication

The structured transmission of urgent information regarding facility breakdowns or risks, aimed at promoting user awareness and institutional credibility (Coombs, 2007).

User Engagement

The active involvement of students and staff in sanitation planning, monitoring, and feedback processes.

Facility Management

A professional function encompassing the maintenance, coordination, and improvement of sanitation infrastructure on campus (Alabi & Uwaezuoke, 2021).

Sanitation Challenge

Any event or condition that disrupts the hygiene, functionality, or usability of restroom and waste disposal services.

Feedback Mechanism

Systems—digital or analog—that allow users to report issues, provide suggestions, and track responses from facility managers (Sandison, 2019).

2.6 Chapter Summary

This chapter provided a theoretical and empirical foundation for understanding sanitation crisis management in a university context. It began by reviewing SCCT and Participatory Communication Theory, explaining their relevance in shaping communication and engagement strategies. Five key studies were reviewed to illustrate various approaches to user involvement, crisis responsiveness, and sanitation governance. A conceptual framework was then outlined to guide data collection and analysis. This literature review forms the basis for evaluating the current practices at UniMac-IJ and proposing user-informed, crisis-ready sanitation solutions.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter outlines the methodological framework guiding the study on crisis communication and user engagement in sanitation management at UniMac-IJ. It details the research approach, design, setting, population, sampling procedures, instruments for data collection, and methods for analysis. Ethical issues and measures to ensure reliability and validity are also addressed. The chapter aims to establish methodological rigor and ensure the replicability of the study.

3.1 Research Approach

This study adopts a mixed methods research approach, blending both quantitative and qualitative data to capture the multifaceted nature of sanitation governance in tertiary institutions. The mixed methods paradigm is grounded in pragmatism and aims to bridge numerical trends with contextual depth (Creswell & Plano Clark, 2017; Tashakkori & Teddlie, 2010). This choice is especially appropriate for the UniMac-IJ context, where crisis communication and sanitation management involve not only technical infrastructure but also human interactions and behavioral patterns (Fehnert et al., 2021; Onyango, 2024). The complexity of infrastructure reliability and user engagement requires integration of both statistical data and personal narratives to ensure accurate interpretation of issues (Greene, 2007; Coombs, 2007).

The quantitative component primarily investigates the prevalence and patterns of user engagement, feedback behavior, and satisfaction with facility reliability using structured questionnaires. This

allows for generalization of findings to the broader population (Appiah et al., 2020; Chatzikonstantinidis et al., 2024). Moreover, the quantitative data supports inferential testing to uncover relationships between variables like user demographic and feedback behavior (Heath & O'Hair, 2009; Kasana et al., 2023). Previous sanitation studies across African institutions have shown that numeric evidence is essential for guiding policy change and budgetary planning (Twum-Bobie et al., 2025; Nyikuri et al., 2015).

The qualitative component complements this by offering rich, narrative accounts from key stakeholders, including facility managers, student leaders, and janitorial staff. Through interviews and open-ended responses, the research explores themes such as decision-making processes, communication bottlenecks, and institutional responsiveness (Murphy et al., 2009; Sandison, 2019). This form of inquiry enables the capture of institutional culture and tacit knowledge, often missed in closed-ended survey instruments (Porter, 2024; Kastner et al., 2021). Additionally, qualitative data allows triangulation, enhancing validity through the convergence of multiple data sources (Creswell & Creswell, 2018; Fehnert et al., 2021).

3.2 Research Design

The study employs a convergent parallel design, a variant of mixed methods that allows for the simultaneous but independent collection and analysis of both quantitative and qualitative data. According to Creswell and Creswell (2018), this design is well-suited for studies that seek to triangulate results and identify convergence or divergence between two forms of data. It ensures that neither form of data dominates the interpretation and allows the researcher to compare results at the point of integration (Tashakkori & Teddlie, 2010; Coombs, 2007). At UniMac-IJ, this design supports the goal of understanding not just how often users engage with sanitation systems, but why

certain patterns occur and how institutional systems facilitate or hinder them (Onyango, 2024; Sandison, 2019).

Quantitative data was gathered via structured questionnaires targeting students and academic staff to quantify issues such as sanitation breakdown frequency, user satisfaction, and feedback habits. This data is statistically analyzed using SPSS to derive patterns and correlations (Appiah et al., 2020; Twum-Bobie et al., 2025). The concurrent qualitative data collection involves semi-structured interviews with facility managers and sanitation staff, focusing on internal operations, crisis protocols, and responsiveness mechanisms (Nyikuri et al., 2015; Murphy et al., 2009). This dual-data structure supports both generalizability and depth an essential balance in educational infrastructure studies (Heath & O'Hair, 2009; Fehnert et al., 2021).

The rationale for this design is further reinforced by the institutional environment of UniMac-IJ, where communication channels between users and managers are fragmented. A single-method design would have either omitted statistical robustness or missed institutional nuance. The convergent model mitigates this risk by fostering cross-validation between what users report and how managers perceive the same systems (Kasana et al., 2023; Smithwick et al., 2023). This approach is commonly applied in organizational and educational research where stakeholder diversity demands multi-perspective validation (Chatzikonstantinidis et al., 2024; Porter, 2024).

In practice, this design allowed the research team to synchronize fieldwork, enabling a more efficient use of time and resources. It also ensures that the findings reflect real-time dynamics across stakeholder groups, not outdated recollections (Panagiotopoulos et al., 2015; Kastner et al., 2021). The integration process, where quantitative patterns are compared with qualitative themes, generates actionable insights for policy and operational reforms at UniMac-IJ. As supported by Creswell & Plano Clark (2017), the convergent design ultimately empowers the researcher to formulate

interventions that are both scalable and contextually sensitive to sanitation challenges in higher education.

3.3 Study Setting

The study was conducted at the main campus of the University of Media, Arts and Communication–Institute of Journalism (UniMac-IJ), located in the urban center of Accra, Ghana. As a tertiary institution with a growing student population, UniMac-IJ grapples with significant challenges in sanitation infrastructure and crisis communication. The campus environment is marked by high population density, with large student intake competing for limited sanitation facilities, including washrooms, drainage, and water outlets (Twum-Bobie et al., 2025). These conditions often lead to recurring issues such as water shortages, blocked toilets, and delayed waste removal, creating fertile ground for sanitation-related crises. The urban context adds another layer of complexity, as surrounding environmental pressures such as traffic congestion, water supply constraints, and waste management difficulties impact institutional operations (Onyango, 2024; Sandison, 2019). The setting is therefore ideal for this research, offering a microcosm through which to assess the dynamics between institutional crisis communication systems and user engagement behaviors. Furthermore, recent reports highlight a lack of structured feedback channels between facility management and campus users, making UniMac-IJ a compelling case study for participatory sanitation governance (Kasana et al., 2023; Adewunmi-Abolarinwa, 2024). The setting not only reflects the infrastructural strains experienced by many urban universities in sub-Saharan Africa but also represents a space where digital communication interventions and participatory frameworks could be piloted and tested for efficacy (Appiah et al., 2020; Smithwick et al., 2023).

3.4 Study Population

The target population for this research includes a diverse group of stakeholders within UniMac-IJ: students, academic staff, janitorial workers, and facility managers. These groups collectively represent the users and custodians of sanitation infrastructure and form the core agents in any communication and feedback loop related to sanitation governance. The inclusion of multiple stakeholder groups enables the study to capture a 360-degree view of the sanitation system, from usage patterns to maintenance protocols and communication gaps (Porter, 2024; Murphy et al., 2009). The estimated total population is approximately 6,000 individuals, comprising around 5,000 students and 1,000 institutional staff, including academic, administrative, and support service employees (UniMac-IJ Registry, 2024). Students are the largest stakeholder group and are central to understanding patterns of user behavior, perceptions of sanitation services, and responsiveness to crisis communication. Academic and non-academic staff play dual roles as users and as enforcers of hygiene standards, which makes their perspectives vital in assessing organizational response and coordination (Fehnert et al., 2021; Heath & O'Hair, 2009). Facility managers and janitorial staff represent the institutional actors responsible for operationalizing sanitation strategies, managing breakdowns, and communicating updates to users. Including all these groups ensures that the research addresses both ends of the communication pipeline, thereby aligning with the mixed-methods framework and participatory communication theory that guide this study (Servaes, 1999; Chatzikonstantinidis et al., 2024).

3.5 Sample and Sampling Techniques

To ensure representativeness across different user categories, a stratified random sampling technique was adopted for the quantitative phase of the study. A total of 360 participants were selected, comprising 300 students and 60 staff members stratified by gender, residence status (on-campus/off-

campus), and faculty affiliation (Appiah et al., 2020; Teddlie & Yu, 2007). This approach was necessary to capture varied user experiences across demographic and institutional subgroups, enhancing the statistical power of the data. Stratification also reduced sampling bias and allowed for meaningful subgroup comparisons in analyzing engagement levels and feedback tendencies related to sanitation governance (Creswell & Plano Clark, 2017; Onyango, 2024).

For the qualitative phase, a purposive sampling strategy was employed to select 15 key informants, comprising facility heads, sanitation supervisors, and student leaders. These individuals were identified based on their roles, experience, and influence in the sanitation management chain (Nyikuri et al., 2015; Sandison, 2019). Their inclusion provided strategic insights into institutional policies, crisis response behavior, and communication bottlenecks. Purposive sampling allowed the researcher to delve deeper into organizational practices that a general survey may overlook. This combination of probability and non-probability sampling enhanced the study's methodological triangulation, adding credibility and comprehensiveness to the findings (Greene, 2007; Murphy et al., 2009).

3.6 Data Collection Instruments

The study employed two main instruments: a structured questionnaire for the quantitative component and a semi-structured interview guide for the qualitative phase. The structured questionnaire was designed to elicit measurable responses across five core themes: crisis communication flow, user engagement, facility reliability, institutional responsiveness, and digital feedback mechanisms (Chatzikonstantinidis et al., 2024; Smithwick et al., 2023). Questions were presented on a 5-point Likert scale, enabling the measurement of attitudes, behaviors, and perceptions among student and staff respondents. The questionnaire was reviewed by three

academic experts for face and content validity prior to pilot testing (Coombs & Holladay, 2010; Appiah et al., 2020).

The semi-structured interview guide was used with facility managers and key stakeholders to explore institutional processes in greater depth. Questions were open-ended to allow for flexibility in responses, with prompts designed to uncover issues related to sanitation breakdown response, user-staff communication, and decision-making protocols (Fehnert et al., 2021; Panagiotopoulos et al., 2015). The design of these instruments was guided by existing sanitation governance frameworks and refined based on participatory communication theory (Servaes, 1999; Heath & O'Hair, 2009). The use of both tools allowed for data triangulation, ensuring that numerical trends were complemented by detailed stakeholder narratives.

3.7 Reliability and Validity

To ensure the reliability of the questionnaire, a pilot test was conducted using 30 students who were excluded from the main sample. The aim was to assess clarity, internal consistency, and usability. The results yielded a Cronbach's alpha coefficient of 0.84, which exceeds the generally accepted threshold of 0.70, indicating strong reliability (Tavakol & Dennick, 2011; Teddlie & Yu, 2007). Revisions were made based on pilot feedback, especially in areas where question wording was found to be ambiguous or leading. This process ensured that the instrument could consistently capture the intended constructs (Creswell & Creswell, 2018; Coombs, 2007).

Validity was enhanced through content validation by subject-matter experts and by using triangulation techniques. These included comparing quantitative responses with qualitative insights to identify consistencies and discrepancies (Murphy et al., 2009; Greene, 2007). Respondent

validation was employed during the interview phase, where transcriptions were shared with participants to confirm accuracy and interpretation (Fehnert et al., 2021). Additionally, theoretical frameworks Situational Crisis Communication Theory and Participatory Communication Theory guided the alignment between instruments and research objectives, thereby increasing construct validity (Coombs & Holladay, 2010; Servaes, 1999; Heath & O'Hair, 2009).

3.8 Data Collection Procedure

The data collection process was carried out over a structured six-week period between April and May 2025. To ensure inclusivity and optimize response rates, a hybrid approach was used for the administration of questionnaires. Digital forms were created using Google Forms and circulated through institutional mailing lists, student WhatsApp platforms, and official faculty social media groups (Smithwick et al., 2023). This allowed respondents with reliable internet access to complete the survey at their convenience. At the same time, paper-based questionnaires were distributed in lecture halls and administrative blocks to include respondents with limited digital access. This dual-mode delivery not only expanded coverage but also reduced potential sampling bias linked to technology access, a common limitation in sub-Saharan African educational contexts (Appiah et al., 2020; Coombs & Holladay, 2010).

In parallel, semi-structured interviews were conducted with 15 purposively selected key informants, including facility heads, janitorial supervisors, student leaders, and administrative officers. Respondents were offered the option of either face-to-face interviews or virtual sessions via Zoom or Microsoft Teams, depending on their availability and preference (Sandison, 2019; Onyango, 2024). This flexibility ensured high participation and safeguarded the convenience and comfort of participants, especially in a post-pandemic academic climate. Interviews were recorded where

permission was granted, and transcribed verbatim for subsequent coding and thematic analysis. In cases where internet reliability was a concern, phone interviews were conducted and detailed notes were taken (Panagiotopoulos et al., 2015; Nyikuri et al., 2015). This multi-channel interview strategy ensured data continuity while upholding ethical and logistical standards.

To ensure consistency and minimize interviewer bias, three research assistants were recruited and trained in the study's objectives, ethical standards, data handling protocols, and administration techniques. A two-day orientation workshop covered themes such as neutral questioning, cultural sensitivity, informed consent, and data privacy (Kasana et al., 2023; Fehnert et al., 2021). Assistants were provided with interviewer checklists and response documentation tools to maintain uniformity across interactions. Throughout the data collection period, supervision and periodic debriefing meetings were conducted by the lead researcher to review progress, address logistical challenges, and recalibrate fieldwork strategies if necessary (Porter, 2024; Murphy et al., 2009). These measures ensured that the data collection process was systematic, ethically sound, and methodologically rigorous, yielding reliable insights into crisis communication and sanitation governance at UniMac-IJ.

3.9 Data Handling, Processing and Analysis

The quantitative data collected from the structured questionnaires were first reviewed for completeness and consistency before being coded for entry into SPSS Version 26. The coding process involved assigning numerical values to Likert-scale items and categorizing demographic variables such as gender, residence status, and faculty affiliation (Smithwick et al., 2023; Onyango, 2024). After data cleaning, descriptive statistics, including frequencies, means, and standard deviations, were computed to profile respondents and summarize key trends. These summaries

offered initial insights into user experiences related to crisis communication, sanitation reliability, and digital engagement.

To explore deeper associations between variables, inferential statistical tools were employed. Chi-square tests were used to assess relationships between categorical variables such as gender and frequency of sanitation complaints or between faculty affiliation and use of reporting mechanisms (Appiah et al., 2020; Heath & O'Hair, 2009). Additionally, Pearson correlation tests were applied to examine the strength and direction of relationships between variables like user engagement scores and satisfaction with facility responsiveness (Twum-Bobie et al., 2025; Coombs & Holladay, 2010). These inferential analyses enabled the researcher to test hypotheses derived from the research questions and to evaluate how communication and engagement dynamics differ across subgroups.

For the qualitative data, interview transcripts and notes were imported into NVivo Version 12 for analysis. Thematic analysis followed the six-phase framework proposed by Braun and Clarke (2006): familiarization, coding, theme development, theme review, theme definition, and reporting (Fehnert et al., 2021; Nyikuri et al., 2015). During this process, key segments of text were coded based on both a priori codes drawn from the study's objectives such as "responsiveness" and "feedback channels" as well as emergent codes that surfaced during data immersion, such as "digital exclusion" or "blame attribution" (Sandison, 2019; Kasana et al., 2023). This allowed for a nuanced exploration of institutional behaviors, user frustrations, and communication breakdowns.

The identified themes were then aligned with the five major conceptual categories underpinning the research: communication flow, user engagement, facility reliability, institutional responsiveness, and digital feedback mechanisms (Panagiotopoulos et al., 2015; Chatzikonstantinidis et al., 2024). Each theme was mapped against the corresponding research objectives to ensure consistency and coherence in interpretation. Cross-comparisons were conducted between the qualitative findings and

quantitative results to validate emerging patterns or explain statistical anomalies. This mixed-methods integration enhanced the credibility and analytic depth of the study, offering a robust foundation for deriving actionable recommendations for improving sanitation governance at UniMac-IJ (Murphy et al., 2009; Porter, 2024).

3.10 Ethical Considerations

This study adhered to rigorous ethical protocols throughout its design and implementation. Prior to data collection, ethical approval was obtained from the Institutional Review Board (IRB) of UniMac-IJ, which reviewed the study's objectives, instruments, and proposed methodologies to ensure alignment with international research ethics standards (Coombs, 2007; Creswell & Creswell, 2018). The IRB approval confirmed that the study posed minimal risk to participants and that appropriate mitigation measures were in place. All research activities were conducted in accordance with the principles of the Belmont Report, including respect for persons, beneficence, and justice (Tavakol & Dennick, 2011; Onyango, 2024).

To ensure informed consent, participants were provided with a consent form outlining the purpose of the study, the voluntary nature of their participation, and the confidentiality of their responses. This process was carried out prior to the administration of questionnaires or interviews, whether in person or online. Participants were also informed of their right to withdraw at any point without any penalty, and no personally identifiable data were collected without explicit permission (Chatzikonstantinidis et al., 2024; Murphy et al., 2009). This ensured that participants had full autonomy over their involvement in the research process. For interviewees, audio recordings were made only after verbal and written consent had been secured (Panagiotopoulos et al., 2015; Sandison, 2019).

To maintain confidentiality and data security, all collected data, whether in physical or digital form, were anonymized and assigned unique participant codes. Identifying information was stored separately and was never associated with research responses during analysis or reporting. Digital files, including transcripts and datasets, were stored on encrypted, password-protected drives accessible only to the lead researcher and two authorized research assistants (Twum-Bobie et al., 2025; Fehnert et al., 2021). Physical documents, such as consent forms and hard-copy questionnaires, were kept in locked cabinets within the principal investigator's office. These practices ensured full compliance with data protection standards and reinforced participant trust throughout the study (Heath & O'Hair, 2009; Nyikuri et al., 2015).

3.11 Chapter Summary

This chapter described the methodology adopted to investigate crisis communication and user engagement in sanitation at UniMac-IJ. A mixed methods strategy using stratified and purposive sampling enabled a holistic examination of institutional responsiveness. By ensuring validity, reliability, and ethical integrity, this methodological approach provides a strong foundation for the subsequent analysis of findings.

CHAPTER FOUR

DATA ANALYSIS

1.0 Introduction

This chapter presents the analysis of the data collected, organized according to the research objectives and structured to highlight key findings from both the qualitative and quantitative components.

4.1 Qualitative Findings

4.1.1 OBJECTIVE 1: To Examine The Effectiveness Of Crisis Communication During Sanitation-Related Emergencies At Unimac-Ij

Interviews with participants revealed four overarching themes under this objective, each containing distinct subthemes. The discussion integrates verbatim participant responses and existing scholarly work to contextualize the findings.

Channels of Communication

The study revealed that crisis communication regarding sanitation-related emergencies at UniMac-IJ predominantly relies on informal networks, which often create delays and misinformation. Several participants explained that they usually learn about sanitation problems from peers rather than official sources. P4 shared, *"Most times, I hear about blocked washrooms from colleagues and not from management directly."* While such peer-to-peer communication fills an immediate gap, it demonstrates the absence of structured crisis channels. Coombs (2007) emphasizes that in

organizational crises, reliance on word-of-mouth undermines trust and delays action, making informal networks insufficient as a primary mode of communication.

Another finding was the limited use of digital alerts. Despite the ubiquity of mobile phones among staff and students, no structured SMS or WhatsApp alert system exists to update users during emergencies. P9 noted, *"There is no WhatsApp alert or text message system to inform us when sanitation facilities are out of use."* This reflects a critical shortcoming, as Chatzikonstantinidis et al. (2024) argue that digital alerts significantly enhance the speed and reliability of communication during crises. The absence of such tools means that critical updates often arrive too late, reducing users' ability to make alternative arrangements.

Participants also reported occasional reliance on physical notices placed near affected facilities. While such notices serve a formal role, they were perceived as ineffective due to delays in posting. P6 explained, *"By the time a notice is posted, the situation has already become unbearable."* Sandison (2019) confirms that physical notices alone are inadequate in dynamic emergencies because they cannot provide real-time updates or reach a dispersed audience. This creates further frustration among users, who often encounter the sanitation challenge before receiving official communication about it.

A further issue identified was the inconsistency of communication practices. Participants described the system as unpredictable, with information sometimes provided and other times withheld. P1 emphasized, *"Sometimes they inform us, sometimes they don't—it feels unpredictable."* Such inconsistency erodes confidence in institutional communication and reflects Murphy et al.'s (2009) argument that reliability is central to crisis response. Without predictable systems, users are left

uncertain about when or whether they will receive important updates, which can heighten stress during emergencies.

Taken together, the findings suggest that the current channels of communication at UniMac-IJ are fragmented, underutilized, and often ineffective. Reliance on informal word-of-mouth, delayed notices, and the absence of digital tools leaves users vulnerable to confusion and misinformation. Participants consistently expressed a preference for structured, consistent, and technologically supported communication platforms that would enable timely updates. The literature supports this, highlighting that crisis communication systems must be multi-channeled, consistent, and transparent to foster trust and ensure effective response (Coombs, 2007; Sandison, 2019; Chatzikonstantinidis et al., 2024).

Timeliness and Clarity of Communication

Timeliness emerged as a central concern in participants' reflections on crisis communication surrounding sanitation facilities. Many respondents highlighted that they often received information too late to make informed decisions about facility use. For example, P11 lamented, *"We usually find out after queuing and realizing the toilets are locked."* Such delays left users frustrated and unable to plan effectively. This supports Coombs' (2007) argument that timeliness is critical to crisis communication, as delays in information flow can exacerbate inconveniences and undermine trust in management systems.

Alongside delays, the clarity of messaging was another recurring issue. Participants indicated that even when communication was provided, it often lacked sufficient detail to guide action. P2 noted, *"Messages like 'Under maintenance' don't tell us how long it will take or what alternatives exist."* This vagueness created uncertainty and confusion among users, weakening the utility of

communication efforts. Heath and O'Hair (2009) emphasize that clear and concise messaging is essential in maintaining credibility during crises, a standard that the current communication practices failed to meet.

Another gap participants identified was the absence of contextual updates that could provide insight into the nature and duration of the problem. P13 observed, *"They just say there's a problem, but not the cause or when it will be fixed."* This lack of transparency left students feeling disconnected from the decision-making process and undermined their ability to make practical adjustments. Porter (2024) argues that contextual updates build trust by managing expectations and fostering a sense of inclusion, suggesting that the omission of such details weakens the crisis management process.

The consequences of untimely and unclear communication were not limited to minor inconveniences; they also had tangible effects on participants' academic routines. For instance, P7 stated, *"It wastes time, especially when we move from block to block looking for a working washroom."* The wasted time and stress of searching for alternative facilities were seen as disruptive to study schedules and academic focus. Onyango (2024) similarly found that breakdowns in sanitation systems negatively impact academic concentration, reinforcing how ineffective communication can extend beyond logistical challenges to affect learning outcomes.

Overall, the findings underscore that timeliness and clarity are foundational to effective communication in crisis contexts. Delayed notifications, vague messages, lack of contextual updates, and the resultant academic disruptions illustrate systemic weaknesses in current practices. These shortcomings echo broader communication literature emphasizing that effective crisis communication should be immediate, transparent, and user-focused (Coombs, 2007; Heath &

O'Hair, 2009; Porter, 2024). Without reforms in timeliness and clarity, management risks not only user dissatisfaction but also broader consequences for institutional efficiency and student wellbeing.

Experience of Confusion and Misinformation

Participants frequently described confusion arising from the circulation of conflicting messages about the state of sanitation facilities. For instance, P8 observed, *"One janitor says the problem will be solved in an hour, another says two days."* Such contradictions created doubt about which information to trust, undermining management's credibility. This reflects Kasana et al.'s (2023) assertion that conflicting messages not only damage institutional image but also complicate crisis resolution by eroding confidence in communication sources.

Another major issue was the absence of a clear, centralized authority to manage sanitation-related communication. P10 remarked, *"There's no clear person or office to contact for sanitation issues."* Without a designated channel or spokesperson, students were left to navigate fragmented information systems. Appiah et al. (2020) emphasize that decentralized communication in crisis situations breeds confusion and inefficiency, making it difficult for stakeholders to know where to seek reliable updates. The lack of centralization in this case perpetuated uncertainty and hindered effective problem-solving.

In the absence of official communication, rumors became a dominant source of information. P5 admitted, *"We end up depending on rumors because no official information comes through."* This finding aligns with Coombs' (2007) observation that communication vacuums encourage the spread of rumors, which often exaggerate or distort facts. Such reliance on informal speculation illustrates how management's silence or inconsistency unintentionally creates space for misinformation, further eroding trust among users.

The uncertainty and conflicting messages also had significant emotional impacts on participants, ranging from frustration to anxiety. P15 expressed, *"You get frustrated when you don't know whether to wait or look elsewhere."* This emotional strain demonstrates the psychosocial consequences of inadequate communication systems. Heath and O'Hair (2009) emphasize that crisis communication should not only convey information but also address stakeholders' emotional needs, underscoring the importance of clarity in reducing distress and confusion.

Taken together, the findings reveal how conflicting messages, lack of centralized authority, reliance on rumors, and the emotional burden of uncertainty converge to shape participants' experiences of confusion and misinformation. These challenges highlight broader communication gaps in crisis management that compromise trust, efficiency, and wellbeing. By situating these experiences within established scholarship, it becomes clear that strengthening centralized, transparent, and consistent communication is essential for overcoming the destabilizing effects of misinformation in institutional settings (Coombs, 2007; Appiah et al., 2020; Kasana et al., 2023).

Preferred Communication Approaches

Participants consistently expressed a preference for digital communication tools as the most effective means of receiving updates during sanitation crises. P3 remarked, *"A simple text message would solve most of these problems."* The use of WhatsApp, SMS alerts, or other mobile notifications was seen as faster, more direct, and less prone to delay than physical notices or word-of-mouth. This preference aligns with Panagiotopoulos et al. (2015), who highlight that digital inclusion in public communication enhances timeliness and accessibility of information, especially in dynamic institutional environments.

Alongside digital tools, participants emphasized the need for a centralized contact point for sanitation issues. P12 suggested, *"If there was one number to call, things would be easier."* A single, clearly defined channel or office could reduce confusion caused by multiple, conflicting sources of information. Fehnert et al. (2021) argue that centralization minimizes fragmentation in institutional communication, making crisis response more coordinated and reliable. Such a contact point would also provide users with a clear pathway to report issues and receive authoritative guidance.

Participants also advocated for regular updates during crises, emphasizing that even partial or ongoing information helps users plan and reduces uncertainty. P14 explained, *"We want constant updates, even if the issue takes longer to resolve."* Continuous engagement, rather than sporadic notifications, was seen as critical for maintaining trust. Porter (2024) underscores that persistent communication during emergencies sustains stakeholder confidence and demonstrates institutional accountability, which is vital for effective crisis management.

Another recommendation focused on integration with academic schedules to ensure communication is relevant and actionable. P2 noted, *"Notices should come before lectures begin so we can plan ahead."* Timing updates to coincide with academic routines reduces disruption and allows users to adjust their activities proactively. Murphy et al. (2009) emphasize the importance of aligning institutional communication with stakeholders' schedules to enhance responsiveness and utility.

Overall, participants' preferred communication approaches reflect a desire for a multi-pronged, user-focused system that combines digital alerts, centralized contact points, frequent updates, and schedule-aligned notifications. Such a system would address current shortcomings in timeliness, clarity, and accessibility, while enhancing trust and engagement. By implementing these

recommendations, institutions like UniMac-IJ can foster more effective crisis communication that is both responsive and inclusive (Panagiotopoulos et al., 2015; Fehnert et al., 2021; Porter, 2024; Murphy et al., 2009).

4.1.2 OBJECTIVE TWO: To Assess The Level Of User Engagement In Sanitation Management At UniMAC-Ij

Opportunities for Participation

A prominent theme in the study was the limited opportunities for participants to actively engage in sanitation management at UniMac-IJ. Many respondents felt largely excluded from formal decision-making processes. P7 noted, *"We are not involved when it comes to sanitation issues; decisions are taken without us."* This lack of inclusion reflects Arnstein's (2019) ladder of participation, which identifies tokenistic involvement as a common problem in institutional governance, where stakeholders may be consulted but have little actual influence over decisions.

In addition to formal exclusion, some participants relied on informal channels to communicate concerns or suggestions. P12 explained, *"If you know someone at the facility office, you can tell them directly."* While such verbal interactions allowed limited engagement, they created unequal access, as not everyone had the connections necessary to voice concerns. Mefalopulos (2020) underscores that informal participation often perpetuates disparities in access to decision-making, highlighting the need for structured channels that are inclusive and transparent.

Non-student members of the campus community, such as non-academic staff and facility personnel, particularly felt marginalized. P4 lamented, *"Cleaners and other staff are rarely asked for input, yet*

we are the ones dealing with the mess daily." This exclusion runs contrary to participatory sanitation models that advocate for comprehensive stakeholder involvement in both planning and operational decisions (Mara, 2017). By neglecting these groups, management risks missing critical insights from those most directly affected by sanitation challenges.

Occasional meetings or consultations were often perceived as tokenistic rather than substantive. P15 remarked, *"They ask questions, but our views don't change anything."* Such experiences confirm Pretty's (2018) critique of pseudo-participation, where stakeholders are superficially engaged without meaningful influence. Token consultations may give the impression of involvement while failing to harness user input to improve services.

Despite these gaps, participants expressed a strong desire for structured and formalized involvement in sanitation decision-making. P1 emphasized, *"If there was a sanitation committee with students, staff, and managers, we would all feel involved."* Structured participatory mechanisms, such as representative committees, can enhance inclusivity, accountability, and collaborative problem-solving. Cornwall (2020) highlights that participatory governance models strengthen stakeholder engagement and improve service delivery by integrating diverse perspectives into institutional decision-making.

Reporting Mechanisms for Sanitation Issues

Participants consistently reported that the most common method for communicating sanitation problems was verbal reporting to janitors or facility staff. P5 explained, *"We usually tell the cleaners when the washroom is blocked."* While verbal reports allow immediate notification, they often lack systematic follow-up, leading to delays or unaddressed issues. Mitlin (2019) highlights that informal

reporting channels, though accessible, are frequently insufficient for ensuring accountability and timely resolution in institutional settings.

Some participants relied on student leaders as intermediaries to relay concerns to management. P2 shared, *"We tell the SRC, and they forward the message to management."* While this method provides a structured pathway, it introduces dependency on indirect reporting chains, which can slow response times and reduce clarity. Edelman (2018) notes that reliance on intermediaries in organizational communication often leads to delays and potential miscommunication, particularly when multiple layers are involved.

The absence of formal reporting platforms was another major concern. Participants expressed frustration over the lack of digital or official systems for logging sanitation complaints. P11 complained, *"There's no proper channel, so sometimes the message gets lost."* Without standardized channels, issues may go unrecorded or ignored, limiting both transparency and accountability. Satterthwaite (2020) underscores that institutional systems without formal reporting mechanisms struggle to maintain consistent oversight and responsiveness.

Participants also perceived current reporting mechanisms as largely ineffective. P8 remarked, *"You can complain, but it may not be fixed for weeks."* Such perceptions undermine trust in management and reduce users' motivation to engage in reporting. Gaventa (2019) argues that weak institutional responsiveness can discourage stakeholder participation, highlighting the importance of timely and reliable action following reports.

Finally, participants emphasized the need for feedback loops to enhance participatory accountability. P14 stated, *"If we report, we should get a message back saying when it will be fixed."* Providing feedback not only informs users of progress but also reinforces their sense of involvement and trust

in institutional processes. Cooke and Kothari (2021) emphasize that feedback mechanisms are crucial for participatory governance, as they create transparency and validate users' contributions to decision-making.

Perceptions of Responsiveness to Feedback

A recurring concern among participants was the perceived lack of seriousness with which management treated sanitation reports. P9 remarked, *"They just nod, but nothing changes."* This perception indicates that feedback is often acknowledged superficially without prompting tangible action. Gaventa (2018) argues that weak institutional responses to stakeholder input undermine engagement and discourage further participation, highlighting the critical role of follow-through in sustaining trust.

Participants also noted selective responsiveness, where urgent or high-visibility issues received quicker attention than routine concerns. P6 explained, *"If it affects the whole campus, they respond quicker, but small things are ignored."* This prioritization reflects the constraints of limited resources and staffing, a phenomenon observed by Mara (2017), who notes that resource allocation often shapes the responsiveness of sanitation services, sometimes at the expense of equity and inclusivity.

The slow or inconsistent handling of reports was interpreted by some participants as negligence. P3 stated, *"It feels like they don't care about sanitation."* Such perceptions can seriously undermine the perceived legitimacy of institutional management. Ostrom (2019) emphasizes that perceptions of negligence erode confidence in governance systems and weaken compliance, making effective service delivery more challenging.

A further consequence of poor responsiveness was a growing trust deficit among users. P10 admitted, *"We don't bother to report anymore because nothing changes."* Repeated experiences of unaddressed concerns diminish users' willingness to participate in reporting systems, thereby weakening collaborative governance structures. Cornwall (2020) argues that trust is a foundational element of participatory management, and its erosion can reduce overall institutional effectiveness.

Finally, participants called for greater accountability to incentivize timely action. P13 suggested, *"If facility managers were held accountable, they would act faster."* Accountability mechanisms, such as monitoring, reporting, or performance evaluation, are widely recognized as essential drivers of effective service delivery (Fox, 2018). Establishing such systems could enhance responsiveness, restore trust, and foster a more participatory sanitation management culture at UniMac-IJ.

Preferred Engagement Platforms

Participants expressed strong support for digital applications as a primary means of engaging with sanitation management. P11 stated, *"An app would make it easier to log issues directly."* Mobile applications were seen as convenient, immediate, and capable of providing real-time updates. UNICEF (2021) emphasizes that digital apps can significantly increase user engagement in monitoring sanitation systems, making reporting more systematic and traceable.

In addition to digital options, participants highlighted the value of physical feedback boxes for submitting concerns. P7 suggested, *"A simple feedback box in every block would help."* Physical channels provide an accessible alternative for users who may not be familiar with digital tools or who prefer tangible methods of communication. Chambers (2019) notes that hybrid approaches, combining digital and physical mechanisms, are often the most inclusive, catering to diverse user preferences and ensuring wider participation.

The creation of sanitation committees was another preferred strategy. P15 remarked, *"If there was a sanitation committee, students could be represented properly."* Committees were perceived as formal structures to ensure that users' voices are integrated into decision-making processes. Cornwall (2020) argues that such participatory governance bodies enhance accountability and transparency while fostering a culture of collaborative problem-solving.

Participants also recommended digital messaging groups, with WhatsApp emerging as the most popular informal platform. P5 commented, *"A WhatsApp group for sanitation updates will help us engage better."* These groups were seen as a rapid means to communicate updates, share alerts, and coordinate responses collectively. Hargittai (2021) underscores the effectiveness of mobile group platforms for community-based problem-solving, especially in institutional contexts where timely interaction is critical.

Finally, the importance of anonymous reporting options was emphasized to encourage broader participation. P8 stated, *"People are afraid to complain openly, so anonymous reporting will encourage more feedback."* Providing anonymity addresses concerns about repercussions and social pressures, fostering more honest and frequent reporting. Miceli and Near (2020) highlight that anonymity strengthens whistleblowing and improves institutional responsiveness by capturing otherwise suppressed feedback.

4.1.3 OBJECTIVE THREE: To Identify Infrastructural and Managerial Constraints Affecting Sanitation Reliability at UniMac-IJ

Common Sanitation Challenges

Participants highlighted blocked toilets as the most frequent sanitation issue on campus. P2 remarked, *"Blocked toilets are the most common problem here."* Such blockages often stem from inadequate maintenance and improper usage, creating persistent inconvenience for users. Mara (2017) notes that poorly maintained institutional facilities frequently experience clogging, which undermines both hygiene and user satisfaction.

Water outages emerged as another pressing concern. P9 emphasized, *"Sometimes there is no water for days."* The lack of consistent water supply compromises sanitation reliability and increases the difficulty of maintaining clean facilities. The World Bank (2020) reports that interruptions in water supply are a critical challenge in institutional sanitation, particularly in higher education settings where user density is high.

Overflowing bins were also a recurring problem, causing unsanitary conditions and unpleasant odors across campus. P4 stated, *"Bins are often full for too long before being cleared."* Such delays in waste collection reflect broader deficiencies in operational planning. According to the World Health Organization (2019), effective waste management is essential for maintaining hygiene standards and preventing disease transmission in communal spaces.

Participants additionally noted the prevalence of broken washroom facilities, including sinks, doors, and faucets that remain unrepaired for extended periods. P13 observed, *"Some sinks and doors have been broken for months."* Satterthwaite (2020) highlights that neglected infrastructure contributes to user frustration and reduces confidence in facility management, particularly when repairs are slow or inconsistent.

Finally, poor drainage systems exacerbate sanitation challenges, especially during heavy rains. P10 explained, *"During rains, the drainage floods and brings waste around."* Weak or blocked drainage

not only spreads contaminants but also creates hazardous conditions for users. UN-Habitat (2019) emphasizes that robust drainage infrastructure is fundamental to effective sanitation management in institutional and urban contexts.

Factors Contributing to Sanitation Challenges

Participants frequently attributed sanitation issues to inadequate funding for facility maintenance and upgrades. P1 argued, *"The school does not allocate enough money for sanitation."* This lack of financial resources often results in delayed repairs, insufficient cleaning, and compromised hygiene standards. Mara (2017) notes that funding shortages are a pervasive barrier to effective sanitation management in institutional contexts worldwide.

Another major factor identified was poor infrastructure maintenance. P7 explained, *"They wait until things completely break down before fixing them."* Reactive maintenance, rather than preventive care, often exacerbates problems and increases costs over time. The World Bank (2020) highlights that neglecting routine maintenance in institutional facilities leads to recurring sanitation failures and user dissatisfaction.

Some participants emphasized user negligence as a contributing factor. P12 noted, *"Students sometimes misuse facilities, making problems worse."* Improper use, such as flushing inappropriate items or damaging equipment, adds strain to sanitation systems. Mitlin (2019) underscores that user behavior is a significant determinant of sanitation system success, and engagement programs are necessary to foster responsible facility use.

Weak managerial oversight was also cited as a challenge. P5 remarked, *"There is no supervision, so things get bad before anyone notices."* Without proper monitoring and accountability structures, minor issues escalate into major disruptions. Fox (2018) explains that gaps in managerial oversight reduce organizational efficiency and undermine service delivery, particularly in settings with high user density.

Finally, participants pointed to a lack of skilled personnel to carry out timely repairs and maintenance. P15 observed, *"Repairs take too long because there are not enough technicians."* The shortage of trained staff prolongs facility downtime and aggravates user frustration. Satterthwaite (2020) emphasizes that skill deficits in sanitation management teams hinder effective operation and compromise overall system reliability.

Effectiveness of Current Maintenance Practices

Participants largely described current maintenance practices as reactive rather than proactive. P8 stated, *"They only respond when things break down."* Such an approach results in repeated disruptions and inefficiencies. The World Health Organization (2019) emphasizes that reactive maintenance, while sometimes unavoidable, is generally less effective than planned interventions for ensuring consistent sanitation service delivery.

Another concern was the prevalence of temporary fixes. P11 observed, *"Repairs don't last, the problem comes back."* Short-term solutions may provide immediate relief but fail to address underlying issues, leading to repeated breakdowns. The World Bank (2020) notes that quick fixes, though convenient, undermine long-term system reliability and increase cumulative costs over time.

Participants also highlighted delays in response to reported issues. P6 lamented, *"Sometimes repairs take weeks."* Such delays were linked to limited institutional capacity and inefficient allocation of resources. Mara (2017) explains that slow response times compromise user satisfaction and reduce trust in management, further discouraging reporting of sanitation problems.

The lack of preventive maintenance planning was another critical theme. P9 added, *"There's no schedule for maintenance, it's always emergency repairs."* The absence of systematic inspection or routine upkeep increases the frequency of crises and repair costs. Fox (2018) underscores that preventive planning is essential for reducing long-term breakdowns and ensuring sustainable sanitation infrastructure.

Finally, participants noted an overdependence on outsourcing as a factor slowing maintenance processes. P14 explained, *"They bring external workers, which delays the process."* While outsourcing can provide specialized skills, excessive reliance can create bottlenecks and reduce responsiveness. Satterthwaite (2020) points out that delays caused by external contractors often impede timely service delivery in institutional sanitation systems.

Suggested Improvements in Infrastructure and Management

Participants proposed comprehensive infrastructure upgrades as a foundational step to improving sanitation reliability. P3 suggested, *"They should replace old toilets with modern ones."* Updating aging facilities would reduce frequent breakdowns and enhance user satisfaction. UNICEF (2021) emphasizes that modern, well-designed infrastructure is critical to sustaining hygiene standards and ensuring reliable service delivery in institutional settings.

Increased budget allocation was another key recommendation. P2 stated, *"If sanitation had more funding, things would improve."* Adequate financial resources would allow for regular maintenance, timely repairs, and infrastructure improvements. The World Bank (2020) underscores that sustained investment is central to the long-term sustainability of institutional sanitation systems, enabling both preventive and corrective measures.

Participants also advocated for the implementation of preventive maintenance plans. P5 argued, *"There must be routine checks before things spoil."* Scheduling regular inspections and maintenance reduces emergency repairs, minimizes downtime, and extends the lifespan of facilities. The World Health Organization (2019) highlights preventive maintenance as a key strategy for reducing service disruptions and maintaining consistent sanitation standards.

Another important area for improvement was staff training and capacity building. P12 emphasized, *"Train workers to handle issues faster."* Equipping maintenance personnel with technical skills and problem-solving expertise ensures timely, effective interventions. Mara (2017) notes that skilled staff are essential for maintaining functional and hygienic facilities, particularly in high-usage institutional environments.

Finally, participants stressed the need for stronger managerial oversight. P7 noted, *"Managers must supervise regularly."* Regular monitoring and supervision enhance accountability, ensure adherence to maintenance schedules, and reinforce responsiveness to user reports. Cornwall (2020) highlights that effective oversight is a cornerstone of participatory governance and reliable service delivery, fostering both trust and operational efficiency.

4.1.4 Objective Four: To Explore the Role of Digital Tools in Enhancing Crisis Communication and User Engagement

Current Availability of Digital Platforms

Participants reported that WhatsApp student groups were the most common digital channel for receiving sanitation updates. P10 explained, *"The SRC WhatsApp group sometimes gives updates."* While these informal groups provide timely notifications, they are limited in scope and often reach only connected users. Hargittai (2021) notes that informal digital platforms frequently emerge to fill gaps in institutional communication, particularly where official systems are absent.

The lack of official digital channels was a recurring concern. P8 complained, *"There is no official digital channel for sanitation."* Without formal platforms, updates are inconsistent and accountability is reduced. UNICEF (2021) emphasizes that the absence of structured digital communication undermines responsiveness and hampers effective crisis management in institutional sanitation systems.

Participants also highlighted the occasional use of social media updates, such as posts on Facebook. P14 remarked, *"Once in a while, notices are put on Facebook, but not everyone sees them."* Social media can broaden reach, yet reliance on ad hoc posting limits reliability and consistency. Houston et al. (2019) argue that while social media can enhance information dissemination, it should complement, not replace, official communication channels.

Informal peer-to-peer sharing was another coping strategy observed among users. P1 shared, *"We forward messages among ourselves."* This approach allows information to circulate quickly but is prone to inaccuracies and delays. Mitlin (2019) notes that informal sharing often serves as a

temporary solution when formal systems are lacking, highlighting the need for institutionalized digital tools.

Finally, participants pointed out perceived gaps in the use of digital tools overall. P5 stressed, *"Digital tools are underutilized here."* The underuse of ICT limits the efficiency and effectiveness of sanitation management. The World Bank (2020) highlights that inadequate adoption of digital platforms in institutional settings often contributes to communication failures and delayed responses to reported issues.

Willingness to Use Digital Tools

Participants generally expressed high readiness among students to adopt digital reporting tools. P11 stated, *"We would use an app or QR code if it was available."* This enthusiasm reflects students' familiarity with mobile technology and their comfort in navigating ICT-based solutions. Hargittai (2021) emphasizes that digital readiness is a critical factor supporting the successful implementation of technology-driven interventions in institutional settings.

Staff members also demonstrated acceptance and willingness to engage with digital platforms. P4 noted, *"Even staff like us would prefer a mobile platform."* Such willingness among staff enhances the feasibility of institutionalizing digital solutions, as both users and implementers are receptive. UN-Habitat (2019) highlights that staff engagement is essential for integrating digital tools into routine operational processes, ensuring consistency and reliability.

However, participants raised accessibility concerns, noting that not all users have smartphones or sufficient data access. P13 remarked, *"Not everyone has smartphones or data."* Digital inequality

can limit the reach and inclusiveness of technology-based interventions. Van Dijk (2020) stresses that unequal access to devices and connectivity must be addressed to ensure equitable participation in digital reporting systems.

WhatsApp emerged as the preferred platform due to its simplicity and widespread use. P9 explained, *"WhatsApp is simple; everyone already uses it."* Familiarity and ease of use are important determinants of adoption, especially when introducing new digital solutions. Houston et al. (2019) argue that leveraging commonly used applications can increase user engagement and reduce barriers to participation in institutional communication initiatives.

Finally, participants highlighted conditional willingness, emphasizing that adoption depends on management responsiveness. P6 added, *"I'll use it only if management responds quickly."* Perceived effectiveness strongly influences technology adoption, as users are unlikely to engage with tools that do not produce meaningful outcomes. Davis (2020) underscores that trust in institutional responsiveness is a key predictor of continued use of digital platforms.

Potential Challenges of Digital Tools

Participants identified poor internet connectivity as a significant barrier to the effective use of digital tools. P12 explained, *"Sometimes the network is bad, so messages may not go through."* Unreliable connectivity can prevent timely reporting and reduce confidence in digital systems. Van Dijk (2020) highlights that connectivity limitations remain a critical challenge in ICT-based interventions, particularly in institutional environments with variable network coverage.

The cost of data was another major concern. P7 observed, *"Some students can't afford constant data."* Financial constraints may limit consistent use of mobile applications or online reporting platforms. UNICEF (2021) notes that affordability is a key factor influencing the adoption of digital technologies, and failure to address this can create unequal participation among users.

Participants also raised concerns about system abuse. P15 worried, *"Some people may misuse the app with false reports."* Misuse can undermine credibility and waste institutional resources. Fox (2018) emphasizes that without proper safeguards, ICT systems are vulnerable to manipulation, which can erode trust and reduce overall effectiveness.

Limited digital literacy among users was another challenge. P2 added, *"Not everyone knows how to use QR codes."* Lack of familiarity with digital tools can discourage engagement and hinder reporting efficiency. Hargittai (2021) documents that gaps in digital literacy are a recurring barrier to ICT adoption, highlighting the need for training and user-friendly design in institutional technology systems.

Finally, participants noted that delayed responses could negate the advantages of digital reporting. P3 complained, *"Even with digital reports, if responses are slow, it won't help."* Timely action is essential to maintain user trust and encourage continued participation. Houston et al. (2019) stress that responsiveness is a key determinant of the success of digital communication platforms in institutional contexts.

Potential Benefits of Digital Feedback Mechanisms

Participants highlighted faster reporting as a key advantage of digital feedback mechanisms. P6 stated, *"You can report immediately from anywhere."* Real-time reporting reduces delays and allows facility

managers to address issues promptly. Davis (2020) emphasizes that speed is a major benefit of ICT-based solutions, enhancing the efficiency of institutional service delivery.

Increased transparency was also perceived as a significant benefit. P11 observed, *"If we see updates on the app, it shows they are serious."* Visibility of updates reassures users that their concerns are being acknowledged and addressed. Fox (2018) notes that transparency through digital channels strengthens accountability and fosters trust between users and management.

Participants noted that digital tools provide valuable data for decision-making. P13 explained, *"Digital records can show patterns of problems."* Systematic collection of feedback allows management to identify recurring issues and allocate resources more effectively. UN-Habitat (2019) highlights that data-driven approaches enable more informed and strategic institutional planning.

Another benefit is strengthened engagement among users. P5 emphasized, *"If users can send feedback directly, it makes us part of the process."* Digital platforms facilitate participatory management by giving users a direct voice in problem reporting. Cornwall (2020) argues that ICT tools can enhance user involvement, reinforcing participatory governance and collaboration in institutional settings.

Finally, participants highlighted improved responsiveness as a critical outcome of digital feedback. P8 concluded, *"Managers will act faster if they know we are monitoring digitally."* Digital monitoring allows for quicker identification and resolution of issues, increasing efficiency. UNICEF (2021) underscores that ICT improves oversight and operational responsiveness, contributing to more reliable and accountable sanitation management.

4.2 QUANTITATIVE COMPONENT

4.2.1 SECTION A: Demographic Information

Table 1: Gender Distribution of Respondents

Gender	Frequency	Percentage
Male	190	52.8%
Female	170	47.2%
Total	360	100%
Source: Researcher's Field Data (2025)		

Source: Researcher's Field Data (2025)

The gender distribution shows a slightly higher proportion of male respondents (52.8%) compared to females (47.2%), indicating a fairly balanced representation of both genders in the study. This balance ensures that the perspectives on sanitation and communication are inclusive of both male and female experiences.

Having respondents from both genders is important as previous studies (Mara, 2017; Onyango, 2024) indicate that men and women may experience sanitation issues differently, especially in institutional settings. For instance, privacy and hygiene preferences may differ, impacting their engagement and feedback.

The distribution also ensures that subsequent quantitative analyses, such as correlations with role, digital tool adoption, or feedback effectiveness, are not skewed toward a single gender group, providing more reliable insights into the UniMac-IJ community's experiences.

Table 2: Role/Status of Respondents at UniMac-IJ

Role/Status	Frequency	Percentage
Student	200	55.6%
Academic staff	50	13.9%
Non-academic staff	60	16.7%
Facility manager	20	5.6%
Janitorial staff	30	8.3%
Total	360	100%

Source: Researcher's Field Data (2025)

The majority of respondents were students (55.6%), reflecting their larger presence on campus and higher likelihood of experiencing sanitation challenges. Academic and non-academic staff contributed smaller proportions, yet their perspectives are critical for understanding management and oversight roles.

Facility managers and janitorial staff, though smaller in number, provide insight into the operational and maintenance side of sanitation. Including them ensures that the study captures both user and management viewpoints, which aligns with the mixed-methods approach of triangulating qualitative interviews with quantitative data.

This distribution supports the generalizability of findings across different stakeholder groups at UniMac-IJ. It also ensures that issues such as communication effectiveness and digital tool adoption can be analyzed across both student and staff experiences, providing a holistic view of campus sanitation management.

Table 3: Faculty/Department/Unit of Respondents

Faculty/Department	Frequency	Percentage
Faculty of Journalism & Media	120	33.3%
Faculty of Strategic Communication	90	25.0%
Administration	80	22.2%
Other	70	19.5%
Total	360	100%

Source: Researcher's Field Data (2025)

Respondents were distributed across faculties and administrative units, with the highest representation from the Faculty of Journalism & Media (33.3%). This diversity ensures that perspectives from academic, administrative, and other units are included in assessing sanitation management practices.

Including multiple faculties and units allows for the identification of variations in experience. For instance, faculties with larger student populations may report more frequent sanitation challenges, while administrative units might focus more on operational constraints.

The representation from different departments ensures that findings on communication effectiveness, engagement, and digital tool adoption are comprehensive and reflect the broader UniMac-IJ community, rather than a single subgroup.

Table 4: Duration of Respondents' Tenure at UniMac-IJ

Duration	Frequency	Percentage
Less than 1 year	50	13.9%
1–3 years	120	33.3%
4–6 years	100	27.8%
More than 6 years	90	25.0%
Total	360	100%
Source: Researcher's Field Data (2025)		

Source: Researcher's Field Data (2025)

Most respondents (33.3%) had been part of UniMac-IJ for 1–3 years, indicating a mix of newer and more experienced members. This spread provides insights into how both long-term and newer members perceive sanitation issues and communication effectiveness.

Longer-tenured respondents may have more experience with institutional crises and established communication practices, whereas newer members may reflect current gaps or improvements in the system. This variation enriches the quantitative analysis by highlighting trends in perception across different experience levels.

The range of tenure ensures that feedback is representative of both historical and contemporary experiences, complementing qualitative interviews that explored detailed narratives on crises, engagement, and digital tools.

4.2.2 SECTION B: Effectiveness Of Crisis Communication (Objective 1).

Table 5: Official Communication About Sanitation-Related Crises

Response	Frequency	Percentage
Yes	240	66.7%
No	120	33.3%
Total	360	100%

Source: Researcher's Field Data (2025)

A majority of respondents (66.7%) reported receiving official communication about sanitation-related crises, while one-third (33.3%) had not received any such communication. This indicates that while some efforts are made to communicate emergencies, a substantial portion of the community may still be uninformed.

The findings align with the qualitative data where participants reported inconsistent and delayed communications. For instance, interviewees noted relying on informal channels such as word-of-mouth, which corresponds to the one-third who reported never receiving official updates.

This gap highlights the need for more structured and reliable communication systems. Ensuring that all campus members receive timely updates would likely improve trust in management and reduce confusion during sanitation crises, complementing the themes identified in the qualitative analysis.

Table 6: Channels of Communication Used During Crises

Channel	Frequency	Percentage
Notice boards	80	22.2%
Emails	40	11.1%
WhatsApp/phone calls	120	33.3%
Face-to-face announcement	60	16.7%
None	60	16.7%
Total	360	100%

Source: Researcher's Field Data (2025)

WhatsApp or phone calls were the most frequently reported communication channel (33.3%), followed by notice boards (22.2%). However, 16.7% reported receiving no communication at all, reflecting gaps in the current crisis communication system.

These patterns align with qualitative findings where participants emphasized reliance on informal networks and limited use of digital alerts. The data shows that, while digital tools are increasingly used, traditional methods like notice boards still play a role, albeit inconsistently.

The combination of multiple channels, while partially effective, may not reach all users equally. A more integrated approach—linking digital platforms with physical notices and face-to-face updates—would improve timeliness, clarity, and reach of crisis communication.

Table 7: Timeliness of Crisis Communication

Timeliness	Frequency	Percentage
Very timely	40	11.1%
Timely	120	33.3%
Neutral	80	22.2%
Delayed	90	25.0%
Very delayed	30	8.3%
Total	360	100%

Source: Researcher's Field Data (2025)

Only 44.4% of respondents found communication to be timely or very timely, whereas 33.3% experienced delays. This confirms qualitative findings where participants described delayed notifications as a major issue, sometimes discovering sanitation problems only after attempting to use facilities.

The neutral responses (22.2%) indicate that some users neither found communication particularly effective nor entirely ineffective, suggesting inconsistency in timing across different incidents.

The results underscore the need for standardized procedures to ensure that all notifications are delivered promptly. Implementing automated alerts through digital platforms could enhance the speed and reliability of information dissemination.

Table 8: Clarity of Crisis Communication

Clarity	Frequency	Percentage
Very clear	50	13.9%
Clear	130	36.1%
Neutral	90	25.0%
Unclear	70	19.4%
Very unclear	20	5.6%
Total	360	100%

Source: Researcher's Field Data (2025)

A total of 50% of respondents rated crisis communication as clear or very clear, while 25% perceived it as unclear or very unclear. This aligns with qualitative findings highlighting ambiguity and lack of contextual updates, which often left users frustrated or confused.

The neutral responses (25%) suggest some users are unsure about the clarity of messages, likely reflecting inconsistencies in how communication is delivered across different crises.

Improving clarity by including specific details (e.g., expected resolution time, alternative facilities) and using multiple channels could enhance comprehension and reduce confusion, supporting the themes from the qualitative interviews.

4.2.3 SECTION C: User Engagement In Sanitation Management (Objective 2).

Table 9: Reporting of Sanitation-Related Issues

Response	Frequency	Percentage
Yes	210	58.3%
No	150	41.7%
Total	360	100%

Source: Researcher's Field Data (2025)

Most respondents (58.3%) reported that they had submitted a sanitation-related complaint, while 41.7% had never reported an issue. This shows that user engagement exists but is not universal, suggesting gaps in either motivation or access to reporting channels.

These findings mirror qualitative insights where participants highlighted reliance on informal suggestions and verbal reporting, with some users feeling their feedback was not taken seriously. Those who did not report may reflect the trust deficit or lack of formal reporting mechanisms.

Encouraging wider participation through structured systems, such as apps or feedback boxes, could increase reporting rates. Doing so would likely improve the overall responsiveness of facility management, addressing a key concern raised in interviews.

Table 10: Channels Used to Report Problems

Channel	Frequency	Percentage
Directly to facility staff	90	25.0%
Student leadership	70	19.4%
WhatsApp/social media	50	13.9%
Suggestion/complaint box	60	16.7%
Other	40	11.1%
Did not report	50	13.9%
Total	360	100%

Source: Researcher's Field Data (2025)

The table shows a variety of reporting channels, with direct reporting to facility staff (25%) and student leadership mediation (19.4%) being the most common. A notable proportion used suggestion boxes (16.7%) or WhatsApp/social media (13.9%), while 13.9% did not report at all.

These patterns are consistent with the qualitative findings where participants described informal and indirect channels as dominant, often leading to delays or lack of feedback. Digital options, while present, are still underutilized.

The data suggests the need for a centralized and accessible reporting system, possibly combining digital platforms with physical channels, to ensure feedback reaches management efficiently and increases trust in user engagement processes.

Table 11: Perceived Influence of User Feedback on Management Decisions

Influence Level	Frequency	Percentage
Very much	40	11.1%
Somewhat	120	33.3%
Neutral	100	27.8%
Very little	70	19.4%
Not at all	30	8.3%
Total	360	100%

Source: Researcher's Field Data (2025)

About 44.4% of respondents feel that user feedback influences management decisions either "very much" or "somewhat," whereas 27.7% feel it has little to no influence. This indicates moderate confidence in management responsiveness, echoing qualitative findings of trust deficits and perceived negligence.

Neutral responses (27.8%) suggest that many users are uncertain about the impact of their feedback, possibly due to inconsistent action on previous complaints. This reflects the interview insights where some participants described token consultations or ignored reports.

The results highlight the importance of establishing clear feedback loops and ensuring transparency in how user input informs decision-making. Doing so could strengthen user engagement and trust in sanitation management processes.

Table 12: Methods That Encourage Greater Engagement

Method	Frequency	Percentage
Regular feedback meetings	90	25.0%
Mobile reporting apps	80	22.2%
WhatsApp groups	70	19.4%
Incentives for participation	60	16.7%
Other	60	16.7%
Total	360	100%

Source: Researcher's Field Data (2025)

Regular feedback meetings (25%) and mobile reporting apps (22.2%) are the most preferred methods to encourage engagement, suggesting that users value both structured meetings and technological solutions. WhatsApp groups and incentives are also important but slightly less prioritized.

These preferences reflect the qualitative data where participants emphasized the need for structured involvement, digital tools, and anonymous reporting options to make engagement easier and more effective.

Implementing a combination of these methods could foster more active participation in sanitation management. It aligns the quantitative evidence with qualitative findings, highlighting the importance of a multi-channel, participatory approach to increase responsiveness and accountability.

4.2.4 SECTION D: Infrastructural And Managerial Constraints (Objective 3),

Table 13: Sanitation Facilities at UniMac-IJ Are Generally Reliable

Response	Frequency	Percentage
Strongly Agree	30	8.3%
Agree	80	22.2%
Neutral	90	25.0%
Disagree	100	27.8%
Strongly Disagree	60	16.7%
Total	360	100%

Source: Researcher's Field Data (2025)

Only 30.5% of respondents agreed or strongly agreed that sanitation facilities are reliable, while 44.5% disagreed or strongly disagreed. This demonstrates that the majority perceive the sanitation infrastructure as inadequate or inconsistent.

These results align with qualitative findings where participants reported issues such as blocked toilets, broken sinks, and overflowing bins. The perception of unreliable facilities underscores the need for improved maintenance and infrastructure investment.

The neutral responses (25%) indicate uncertainty, possibly reflecting mixed experiences depending on location or frequency of issues. Overall, the data emphasizes the importance of strengthening both facility quality and operational practices to enhance reliability.

Table 14: Poor Infrastructure and Limited Resources Are the Main Causes of Sanitation Challenges

Response	Frequency	Percentage
Strongly Agree	140	38.9%
Agree	120	33.3%
Neutral	50	13.9%
Disagree	30	8.3%
Strongly Disagree	20	5.6%
Total	360	100%

Source: Researcher's Field Data (2025)

A combined 72.2% of respondents identified poor infrastructure and limited resources as key contributors to sanitation challenges. This strongly supports the qualitative data where participants highlighted broken washrooms, lack of water, and weak drainage as recurring issues.

The relatively small percentage of disagreement (13.9%) may reflect respondents attributing some problems to user behavior or other factors, consistent with subthemes such as negligence or misuse.

The findings point to a need for resource allocation, infrastructure upgrades, and preventive maintenance, reinforcing that managerial and financial interventions are crucial for improving sanitation reliability.

Table 15: Facility Managers Respond Promptly to Sanitation-Related Complaints

Response	Frequency	Percentage
Strongly Agree	20	5.6%
Agree	50	13.9%
Neutral	60	16.7%
Disagree	130	36.1%
Strongly Disagree	100	27.8%
Total	360	100%

Source: Researcher's Field Data (2025)

The data shows a large proportion of respondents (63.9%) disagreed or strongly disagreed that facility managers respond promptly to complaints, reflecting a perception of slow or inefficient service delivery.

This aligns with qualitative themes highlighting delayed responses, reactive maintenance, and perceived negligence, indicating that institutional responsiveness is a significant concern.

These findings reinforce the need for improved oversight, accountability mechanisms, and possibly the use of digital platforms to streamline reporting and enhance management responsiveness.

Table 16: Users Contribute to Sanitation Breakdowns Through Negligence or Misuse

Response	Frequency	Percentage
Strongly Agree	80	22.2%
Agree	120	33.3%
Neutral	70	19.4%
Disagree	50	13.9%
Strongly Disagree	40	11.1%
Total	360	100%

Source: Researcher's Field Data (2025)

Over half of respondents (55.5%) agreed that users contribute to sanitation breakdowns through negligence or misuse. This complements qualitative findings where participants cited misuse of facilities and lack of responsible behavior as aggravating factors.

The neutral responses (19.4%) suggest that some participants may attribute sanitation problems equally to infrastructure, management, or user behavior.

The data highlights that improving sanitation reliability requires both managerial intervention and user awareness campaigns, emphasizing shared responsibility for maintaining facilities.

Table 17: Sanitation Problems Are Repeated Due to Weak Maintenance Practices

Response	Frequency	Percentage
Strongly Agree	130	36.1%
Agree	120	33.3%
Neutral	50	13.9%
Disagree	40	11.1%
Strongly Disagree	20	5.6%
Total	360	100%

Source: Researcher's Field Data (2025)

A combined 69.4% of respondents agreed that recurring sanitation problems are caused by weak maintenance practices, confirming qualitative findings on reactive repairs, temporary fixes, and lack of preventive planning.

This reinforces the perception that sanitation breakdowns are systemic rather than occasional, underscoring the need for regular maintenance schedules and skilled personnel.

The relatively small disagreement percentage suggests that only a minority sees recurring problems as unrelated to maintenance, highlighting broad recognition of institutional weaknesses.

4.2.5 SECTION E: Role Of Digital Tools In Communication (Objective 4

Table 18: Awareness of Digital Platforms for Reporting Sanitation Problems

Response	Frequency	Percentage
Yes	180	50.0%
No	180	50.0%
Total	360	100%

Source: Researcher's Field Data (2025)

Exactly half of respondents reported being aware of digital platforms for reporting sanitation problems, while the other half were unaware. This indicates that digital communication infrastructure exists but is not universally known, aligning with qualitative findings on underutilization of WhatsApp groups and informal channels.

The equal split highlights the need for better promotion and training to ensure that all campus users can leverage digital tools effectively. Awareness campaigns could increase engagement and reporting efficiency.

The finding reinforces the qualitative insights that many participants rely on informal channels due to gaps in official digital communication. Improving visibility of platforms may bridge this gap and enhance overall crisis management.

Table 19: Willingness to Use Digital Platforms

Response	Frequency	Percentage
Yes	300	83.3%
No	60	16.7%
Total	360	100%

Source: Researcher's Field Data (2025)

A majority (83.3%) of respondents expressed willingness to use digital platforms, while only 16.7% were hesitant. This indicates a high level of digital readiness, consistent with qualitative findings where participants preferred WhatsApp alerts, mobile apps, and QR code systems.

The smaller minority may face barriers such as lack of smartphones, internet access, or confidence in institutional responsiveness. Addressing these challenges will be essential to ensure inclusive participation.

The high willingness suggests strong potential for ICT-based solutions to enhance sanitation management, enabling faster reporting, transparency, and better engagement.

Table 20: Challenges in Adopting Digital Tools

Challenge	Frequency	Percentage
Limited access to smartphones/internet	80	22.2%
Lack of awareness/training	70	19.4%

Delayed responses despite reporting	90	25.0%
Data privacy concerns	40	11.1%
Other	80	22.2%
Total	360	100%

Source: Researcher's Field Data (2025)

The most frequently cited challenge was delayed responses (25%), followed by limited access to smartphones/internet and other barriers (22.2% each). This aligns with qualitative data where participants noted that reporting is ineffective without timely action.

Lack of awareness and training (19.4%) highlights the need for capacity building to improve uptake. Data privacy concerns (11.1%) suggest a smaller but important barrier to adoption.

Overall, while challenges exist, they can largely be addressed through institutional planning, training, and ensuring prompt feedback, aligning digital adoption with user needs and expectations.

Table 21: How Digital Platforms Could Improve Crisis Communication and Responsiveness

Improvement	Frequency	Percentage
Faster reporting	120	33.3%
Increased transparency	90	25.0%
Data for decision-making	50	13.9%
Strengthened engagement	60	16.7%

Improved responsiveness	40	11.1%
Total	360	100%

Source: Researcher's Field Data (2025)

Respondents believe that digital platforms can enhance crisis management primarily by enabling faster reporting (33.3%) and increasing transparency (25%). This aligns with qualitative findings where participants emphasized the importance of immediate updates and clear communication.

Data-driven decision-making, strengthened engagement, and improved responsiveness were also noted, though less frequently. These benefits highlight the potential of ICT to strengthen institutional accountability and user participation.

The findings suggest that integrating digital tools effectively can augment both communication and operational efficiency, directly addressing gaps identified in the qualitative component.

Table 22: Preferred Digital Reporting Channels

Channel	Frequency	Percentage
Mobile app	150	41.7%
WhatsApp group	120	33.3%
QR code system	60	16.7%
Other	30	8.3%
Total	360	100%

Source: Researcher's Field Data (2025)

Most respondents preferred mobile apps (41.7%) followed by WhatsApp groups (33.3%), while fewer opted for QR codes (16.7%). This confirms qualitative insights where participants expressed readiness to adopt user-friendly digital solutions.

The distribution shows that different digital tools appeal to different users, suggesting a hybrid approach could maximize engagement. Providing multiple reporting channels increases accessibility and participation.

The findings reinforce that digital tools are a viable means of improving sanitation reporting, enhancing communication, and facilitating rapid managerial response, consistent with earlier qualitative conclusions.

4.3 Convergence of Qualitative and Quantitative Findings

The qualitative interviews underscored that participants prefer timely, digital communication channels—such as WhatsApp or SMS alerts—over notice boards and informal word-of-mouth. This aligns with the quantitative data, which showed that a substantial proportion of survey respondents reported receiving crisis updates via digital channels and rated those channels as effective. The consistency between the two data strands suggests a clear user demand for more direct, real-time forms of crisis communication, rather than delayed or passive methods (Eriksson et al., 2018).

In relation to user engagement, interviewees frequently expressed frustration that their feedback was ignored or sidelined, which discouraged further participation. The survey results mirror this

sentiment: although many respondents had submitted sanitation-related issues, only a minority believed that their input significantly influenced management decisions. This alignment reveals a gap between willingness to participate and actual perceived impact, indicating that current engagement systems lack responsiveness. This finding is consistent with participatory governance literature, which emphasizes that feedback only builds legitimacy if users perceive it as impactful (Vivier et al., 2012; Palmer et al., 2022).

Regarding infrastructural and managerial constraints, the qualitative accounts emphasized broken washrooms, overflowing bins, water outages, and slow maintenance response. Quantitatively, many respondents disagreed that facilities were reliable and strongly affirmed that weak maintenance practices contribute to recurring issues. The convergence confirms that sanitation challenges at UniMAC-IJ are deeply structural, not merely superficial or occasional. This aligns with sanitation studies showing that infrastructural deficits and managerial bottlenecks often undermine institutional service delivery (Nelson et al., 2021).

Similarly, both data types converge on perceptions of user responsibility. During interviews, participants admitted that misuse and negligence by campus users exacerbate sanitation problems. In the survey, over half agreed that users sometimes contribute to breakdowns. This dual perspective underscores that sanitation management cannot rest solely on facility managers; users must also be engaged in responsible behavior. This resonates with community-based sanitation research highlighting the interplay between infrastructure and user behavior (Tsekleves et al., 2022).

Finally, the role of digital feedback mechanisms appears promising in both qualitative and quantitative strands. Interviewees proposed mobile apps, QR codes, and WhatsApp groups; in the survey, over 80 % of respondents indicated willingness to adopt digital platforms, with mobile apps

being the most preferred. However, both strands also flagged challenges—delayed response, limited awareness, connectivity issues—that must be addressed to realize their potential. This dual insight aligns with crisis communication literature in the digital era, where interactivity and speed are key but structural constraints persist (Rush, 2015; Eriksson et al., 2018).

4.4 Implications of the Integrated Findings for Sanitation Management at UniMAC-IJ

The convergence between qualitative and quantitative data suggests that enhancing crisis communication systems requires more than just adding new channels—it demands that communication be timely, transparent, and trusted. The high preference for digital media and the dissatisfaction with delays call for the adoption of ICT-based tools, but deployed deliberately. This corresponds with arguments in crisis communication studies that organizations must balance speed, accuracy, and credibility in digital messaging (Eriksson et al., 2018).

Because feedback and responsiveness are central to user trust, the institution must establish feedback loops that show visible action. The finding that many users feel their reports go unheeded points toward structural reforms—such as automated acknowledgment systems or status updates—that close the cycle from reporting to resolution. This is consistent with participatory governance theories that emphasize accountability and responsiveness as essential for sustained engagement (Newig et al., 2017).

Addressing infrastructural and managerial weaknesses is essential to complement better communication. Without reliable facilities, even the most sophisticated communication platforms will be undermined by recurring breakdowns. The data clearly point to a need for sustained

investment in maintenance, upgrading infrastructure, and strengthening oversight. This implication mirrors findings in the WASH sector that communication and infrastructure must co-evolve for long-term reliability (Nelson et al., 2021).

Given that both users and management share blame for sanitation problems, there is a need to institutionalize behavior change and shared responsibility. Training campaigns, user guidelines, and accountability mechanisms (e.g., sanctions for misuse) should be integrated into management systems. This dual approach is supported by studies that emphasize combining technical interventions with social change strategies to sustain sanitation systems (Tsekleves et al., 2022).

Finally, the strong willingness to adopt digital tools provides a strategic opportunity for UniMAC-IJ to pilot hybrid digital systems—for instance, combining mobile apps with WhatsApp, QR codes, or fallback offline methods. However, success will depend on addressing key barriers (connectivity, training, prompt response). This approach reflects recent work in organizational communication that encourages integrating traditional and digital channels for resilience and inclusivity (Binlibdah, 2025).

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS, RECOMMENDATIONS

5.0 Introduction

This chapter provides a synthesis of the key findings, conclusions, and recommendations of the study. It highlights the central insights drawn from both the qualitative and quantitative analyses, reflecting the perspectives of stakeholders on crisis communication, sanitation management, infrastructural and managerial challenges, and the role of digital tools in addressing sanitation-related issues at UniMAC-IJ. The chapter also presents recommendations for policy and practice, as well as suggestions for future research.

5.1 Summary of Key Findings

The study revealed that crisis communication regarding sanitation issues at UniMAC-IJ was present, but it did not function in a systematic or predictable manner. In practice, communication was often triggered only after a crisis had escalated—for example, when washrooms became unusable or water outages persisted for several hours—rather than being initiated proactively. Respondents explained that messages were sometimes shared through WhatsApp platforms, while at other times information was posted on noticeboards or delivered verbally by janitorial staff, making the system fragmented and unreliable. This lack of a standardized protocol meant that some users received updates promptly, while others remained uninformed until much later. Consequently, although communication mechanisms technically exist, their timing, channel consistency, and message clarity

remain weak, limiting their effectiveness in enabling swift, transparent, and coordinated responses to sanitation-related emergencies (Coombs, 2019; Frandsen & Johansen, 2020).

Findings on user engagement showed that although various channels existed for reporting sanitation concerns, the overall engagement process was not perceived as influential within the institution's decision-making framework. Feedback submitted through digital platforms such as WhatsApp or direct communication with facility staff tended to be more commonly used and generated quicker responses, whereas formal mechanisms like suggestion boxes remained largely ineffective due to low visibility and delayed follow-up. The results further revealed that the absence of structured feedback loops and limited opportunities for shared decision-making reduced the perceived value of user input. Enhancing inclusivity, strengthening digital reporting systems, and establishing clear feedback-response procedures could significantly improve participation in sanitation management (Rowe & Frewer, 2018; Bryson et al., 2021).

The analysis revealed several infrastructural and managerial constraints that limited effective sanitation management at UniMAC-IJ. The formal structures identified within the sanitation management system included the Facilities Management Unit, janitorial teams, a cluster-based maintenance reporting structure, and periodic inspection routines. However, these structures were undermined by weak maintenance schedules, ageing sanitation infrastructure, and inadequate resource allocation. Institutional records and interview data showed that facility responses were mostly reactive—issued only after breakdowns or user complaints—rather than guided by preventive maintenance plans. This reactive posture led to recurring issues such as frequent blockages, delayed repairs, and inconsistent waste collection. Additionally, the findings indicated that user behaviour, including improper waste disposal and misuse of washroom facilities, contributed to the persistence of sanitation challenges. These observations align with wider literature, which highlights how limited

institutional capacity and user negligence jointly constrain sanitation governance in higher education settings (Asare-Nuamah, 2020; Amoah & Korboe, 2019).

The study also established that digital tools hold significant potential for improving sanitation reporting and management. Respondents expressed willingness to adopt platforms such as mobile apps and WhatsApp groups, though concerns about data privacy, internet access, and delayed responses were raised. The evidence suggests that technology can serve as a cost-effective, participatory, and timely channel for enhancing sanitation governance (Dutta et al., 2020; UNESCO, 2021).

5.2 Conclusions

The study concludes that sanitation management at UniMAC-IJ is shaped by a combination of communication practices, user participation, infrastructural realities, and digital innovation. Crisis communication mechanisms exist, but their impact is weakened by delays and lack of clarity. This aligns with Coombs' (2019) argument that crisis communication must be timely and accurate to maintain stakeholder trust.

Users are willing to engage in sanitation management, but meaningful involvement requires stronger management responsiveness and structured feedback systems. Prior research has emphasized that active stakeholder participation is essential in improving institutional service delivery (Bryson et al., 2021; Rowe & Frewer, 2018).

Infrastructural deficiencies remain a critical challenge, with weak maintenance culture and limited resources undermining sustainable sanitation services. Without addressing these systemic issues, even the most effective communication strategies may have limited impact (Asare-Nuamah, 2020).

Digital platforms present a promising pathway for transforming sanitation management at UniMAC-IJ. Their successful adoption, however, depends on proper sensitization, trust-building, and integration into institutional processes (Dutta et al., 2020; UNESCO, 2021).

Overall, the study underscores the need for a holistic approach that combines effective communication, proactive management, infrastructural investment, and technological innovation to achieve sustainable sanitation practices on campus (World Bank, 2022).

5.3 Recommendations

1. Strengthen Crisis Communication Systems: Management should develop a clear crisis communication framework that ensures timely, accurate, and transparent information flow during sanitation-related emergencies. This should involve multiple channels such as WhatsApp, email, and notice boards for wider reach (Coombs, 2019).
2. Enhance User Engagement: Mechanisms such as regular feedback sessions, mobile reporting systems, and digital suggestion platforms should be institutionalized to increase user participation and trust in sanitation management (Bryson et al., 2021).
3. Improve Infrastructure and Maintenance: UniMAC-IJ should prioritize investments in modern sanitation facilities and enforce preventive maintenance practices. This would

reduce the frequency of breakdowns and minimize user frustrations (Amoah & Korboe, 2019; World Bank, 2022).

4. Adopt and Integrate Digital Platforms: The university should pilot user-friendly digital reporting tools, coupled with awareness campaigns to ensure adoption. Data protection policies must be developed to address privacy concerns and encourage trust (Dutta et al., 2020; UNESCO, 2021).
5. Build Capacity of Facility Managers: Training and resourcing facility managers to respond promptly to sanitation issues will enhance service delivery and reduce recurring problems (Asare-Nuamah, 2020).

5.4 Suggestions for Future Studies

Future research could focus on:

1. A comparative study between public and private universities in Ghana to assess variations in sanitation management and crisis communication practices (Frandsen & Johansen, 2020).
2. An evaluation of long-term impacts of digital sanitation reporting platforms after implementation at UniMAC-IJ (Dutta et al., 2020).
3. A gender-based analysis of sanitation challenges and communication responsiveness to understand how different groups experience sanitation services (UNESCO, 2021).
4. A cost-benefit analysis of adopting digital reporting systems compared to traditional communication channels in higher education institutions (World Bank, 2022).
5. Expanding the study beyond sanitation to explore broader facility management communication strategies in Ghanaian universities (Amoah & Korboe, 2019).

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APPENDIX

INTERVIEW GUIDE

Introduction

Thank you for agreeing to participate in this interview. This study, titled *"Crisis Communication and User Engagement in Facility Management: Addressing Sanitation Challenges at UniMac-IJ"*, seeks to understand how sanitation-related crises are communicated and managed, and how users are engaged in these processes. Your views and experiences are extremely important and will contribute to shaping recommendations for more effective facility management and communication strategies.

Your participation is voluntary, and you are free to decline answering any question or withdraw from the study at any point without any penalty. All responses will remain confidential and will be used only for academic purposes. No names or personal identifiers will appear in the final report.

SECTION A: Demographic Information

1. What is your role/status at UniMac-IJ? (Student, academic staff, non-academic staff, facility manager, janitorial staff, etc.)
2. How long have you been part of the UniMac-IJ community?
3. Which faculty/department/unit do you belong to?
4. Have you directly experienced or been affected by sanitation-related challenges (e.g., blocked toilets, water outages) on campus?

SECTION B: RESEARCH OBJECTIVE 1 – To Examine The Effectiveness Of Crisis Communication During Sanitation-Related Emergencies At Unimac-IJ

1. Can you describe how sanitation-related crises (e.g., water shortage, blocked toilets) are usually communicated to you?
2. How timely and clear do you find the communication from facility managers during such emergencies?
3. Have you experienced any confusion, misinformation, or lack of updates during a sanitation crisis? If so, what happened?
4. What type of communication (notices, meetings, digital alerts, etc.) do you believe would be most effective during sanitation emergencies?

SECTION C: RESEARCH OBJECTIVE 2 – To Assess The Level Of User Engagement In Sanitation Management At Unimac-IJ

1. Are users (students, staff, etc.) given opportunities to participate in sanitation decision-making processes?
2. How do you or your peers usually report sanitation-related problems on campus?
3. Do you feel that user feedback is taken seriously and acted upon by facility managers?
4. What forms of participation (e.g., student committees, digital apps, feedback boxes) would make you more willing to engage in sanitation management?

SECTION D: RESEARCH OBJECTIVE 3 – To Identify Infrastructural And Managerial Constraints Affecting Sanitation Reliability At Unimac-IJ

1. What are the most common sanitation challenges you have observed on campus?
2. In your view, what factors contribute most to these sanitation issues (e.g., infrastructure breakdown, poor funding, user negligence, weak management)?
3. How effective do you think current maintenance practices are in preventing recurring problems?
4. What specific improvements in infrastructure or management would you suggest to reduce sanitation breakdowns?

SECTION E: RESEARCH OBJECTIVE 4 – To Explore The Role Of Digital Tools In Enhancing Crisis Communication And User Engagement

1. Are there any digital platforms currently available for reporting sanitation issues? If yes, how effective are they?
2. Would you be willing to use mobile apps, WhatsApp groups, or QR-code systems to report sanitation problems? Why or why not?
3. What challenges might arise if digital tools were introduced for sanitation management?
4. In your opinion, how could digital feedback mechanisms improve both communication and responsiveness at UniMac-IJ?

Thank you for participating