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The Effects of WhatsApp Communication on Parent Engagement: A Case of College Maranatha Secondary School in Nyanza

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Abstract

Parent engagement is a significant challenge affecting student academic performance at College Maranatha Secondary School in Nyanza District. Despite widespread WhatsApp availability and regular use among parents, the school experiences communication difficulties and limited parent participation in school activities. This research investigated how WhatsApp communication affects parent engagement at College Maranatha Secondary School. The study employed an exploratory case study approach with stratified random sampling, collecting data from 106 participants including 75 parents who completed questionnaires in Kinyarwanda and 31 school officials who participated in English-language interviews. Analysis utilized both quantitative and qualitative methods including descriptive statistics, correlation analysis, and t-tests. Findings revealed that 85.3% of parents use WhatsApp daily, the study identified a critical 52% gap between WhatsApp availability (85.3% daily users) and school group participation (33.3%), representing untapped potential for improved parent engagement. Statistical analysis confirmed that WhatsApp group members demonstrate significantly higher engagement (mean difference = 2.48 points, p=0.0178) and satisfaction (mean difference = 2.14 points, p<0.0001) compared to non-members. No significant correlation existed between general WhatsApp usage frequency and communication satisfaction. However, WhatsApp group member's demonstrated substantially higher engagement improvement and satisfaction levels compared to non-members. Time constraints emerged as the primary participation barrier, while academic progress updates represented the most valued communication type. School officials confirmed positive effects, with 93.5% reporting increased parent participation. The hypothesis received partial support, as structured WhatsApp communication through organized groups proved more effective than individual platform usage. The study recommends implementing systematic campaigns to increase WhatsApp group membership, developing structured communication schedules, creating quality content standards focused on academic information, and establishing regular monitoring systems.

Keywords: Digital communication, Educational technology, Parent engagement, and WhatsApp communication.

1. Introduction

According to Rwanda's Ministry of Education's Education Strategic Plan for academic year 2018/19 to 2024/25, ensuring active parent engagement in

children's education was identified as one of the critical factors that increase learning outcomes (MINEDUC, 2018; Molina, 2025). That same strategic plan also emphasized the importance of digital com-

munication tools in enhancing education and recognized their potential in bridging the communication gap between schools and parents.

A study by Nizeyimana *et al.* (2021) in the Rwanda Journal of Education found that less than 50% of Rwandan parents regularly participate in their children's school activities. Similarly Manilal and Jairam, (2023) found that while parents from both privileged and underprivileged communities were concerned about their children's education, the level of participation differed significantly, with privileged school parents being more involved. This indicates a significant gap that needs to be addressed.

According to Igihe, (2023) mobile phone penetration in Rwanda has reached 87.4%. Although WhatsApp is the most used communication platform, schools have not fully utilized this platform for engagement with parents. A study in Uganda found that increased digital communication has led to increased student academic performance (Mahuro and Hungi, 2016; Uddin *et al*., 2025). This suggests that WhatsApp communication could be an effective tool for enhancing parent engagement, especially in College Maranatha Secondary School.

Background of the Study
At College Maranatha Secondary School in Nyanza, despite high accessibility of messaging platforms among parents, dean of studies reports show persistently low engagement rates with school communications. According to Ndayambaje *et al*. (2023), school leaders struggled to maintain consistent engagement with parents and students during critical periods like the COVID-19 pandemic, even with available digital platforms like WhatsApp.

The current situation at the school shows various challenges including limited student academic monitoring, ineffective homework supervision, and affected overall academic performance. Research by Ntawugashira and Ndagijimana, (2022) demonstrates that when parents are more engaged in their students' school activities, the students perform better than before. This finding is further supported by Nsabayezu *et al*. (2020), who found that when properly utilized, platforms like WhatsApp can effectively support

teaching, learning and parent engagement, promoting student motivation, collaboration, and participation.

A recent study by Nyilimpeta and Kiarie, (2024) in Gasabo District found a statistically significant relationship (r = .793, p < .01) between parent-school communication and student academic performance in secondary schools. Their research revealed that consistent parent-school communication leads to improved student outcomes, particularly in homework completion and academic engagement. Similarly, Tabaro and Uwamahoro, (2020) found that even vulnerable families in Muhanga District showed moderate levels of involvement in their children's education, indicating the potential for increased engagement through accessible communication channels.

Problem Statement
At College Maranatha Secondary School in Nyanza, despite high accessibility of messaging platforms among parents, the dean of studies reports show persistently low engagement rates with school communications. According to Ndayambaje *et al*. (2023) school leaders struggled to maintain consistent engagement with parents and students during critical periods like the COVID-19 pandemic, even with available digital platforms like WhatsApp.

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completion and academic engagement. Similarly Tabaro and Uwamahoro, (2020) found that even vulnerable families in Muhanga District showed moderate levels of involvement in their children's education, indicating the potential for increased engagement through accessible communication channels.

Furthermore, research by Ayikoru, (2024) in Uganda demonstrated that structured parent-teacher communication systems significantly improved student academic performance, with participating schools reporting enhanced student motivation and better academic outcomes. This aligns with the situation at College Maranatha Secondary School, where despite available technology, systematic parent engagement remains a challenge to be addressed.

The problem is that even though WhatsApp is widely available and used by parents at College Maranatha Secondary School, it has not had the expected positive effect on parent engagement levels. Parent engagement in important areas like meeting attendance, school activity participation, student progress tracking, communication with teachers, response to school announcements, and homework monitoring is still low, which shows that simply having WhatsApp is not enough. The school needs to understand what effects WhatsApp communication actually has on these engagement areas and how to use it effectively to improve parent participation.

Research Objectives
General Objective
To investigate the impact of WhatsApp communication on parent engagement and student academic performance at College Maranatha Secondary School.

Specific Objectives
1) To assess the current WhatsApp usage patterns among parents and school officials at College Maranatha Secondary School
2) To examine the effects of WhatsApp communication on parent engagement levels including engagement improvement, communication satisfaction, and participation patterns
3) To identify the barriers that limit the positive effects of WhatsApp communication on parent

engagement and the enablers that enhance these effects

Research Hypothesis
Null Hypothesis (H_0):
WhatsApp communication has no significant effect on parent engagement levels at College Maranatha Secondary School.
Alternative Hypothesis (H_1):
WhatsApp communication has a significant positive effect on parent engagement levels at College Maranatha Secondary School.

2. Methodology
Study Area
This research was conducted at College Maranatha Secondary School, located in Nyanza District, Southern Province of Rwanda. The school is a mixed-gender secondary institution offering both O-level and A-level education. The selection of this study area is based on its representation of a typical Rwandan secondary school with an existing but underutilized WhatsApp communication system between teachers and parents.

Study Population
The target population for this study consisted of two main groups: parents of students currently enrolled at College Maranatha Secondary School who use WhatsApp (estimated 300 parents) and teachers and school administrators (45 staff members). The total study population was 345 individuals (300 parents + 45 staff).

Study Design
This research used an exploratory case study design to investigate the effects of WhatsApp communication on parent engagement at College Maranatha Secondary School. This design choice is in line with the research objectives as it provides an opportunity to understand how WhatsApp communication influences parent engagement within the specific context of the school. Through this approach, the study was able to understand the relationships between WhatsApp usage and parent engagement while also exploring various factors that either enable or hinder effective communication.

Sampling

The study used stratified random sampling to ensure that different groups within the school community were properly represented. This included parents who use WhatsApp and school staff members. Within each stratum, simple random sampling was used to select specific participants, while purposive sampling was applied for selecting key informants such as school administrators and teachers directly involved in parent communication.

To determine the appropriate sample size, Slovin's formula was applied using the total population of 345 individuals (300 WhatsApp-using parents and 45 staff members). Using the formula $n = N / (1 + Ne^2)$ where $N = 345$ (total population) and $e = 0.05$ (margin of error at 95% confidence level), the calculation yielded $n = 185$ participants distributed proportionally among the different stakeholder groups: 160 parents who use WhatsApp (87%) and 25 teachers/administrators (13%). The research successfully collected data from 106 participants, representing 57.2% of the calculated required sample size. This achievement included 31 school officials, representing 68.9% response rate from the total staff population of 45 members, and 75 parents, representing 25.0% of the parent population of 300 WhatsApp users.

Data Collection Tools

For parents, questionnaires were used, while for school officials such as teachers, interviews were conducted. The purpose of the parents' questionnaire was to learn about their preferences for school communication, obstacles to engagement, and WhatsApp usage patterns. Questions about WhatsApp's implementation, efficiency, and effect on student performance were included in the interview guide for school administrators.

Data Analysis

Data analysis employed both quantitative and qualitative methods. Quantitative data from questionnaires were analyzed using descriptive statistics, correlation analysis, and independent samples t-tests. Qualitative data from interviews were thematically analyzed to identify patterns and insights. Statistical significance was set at $p < 0.05$.

Mechanisms to Ensure Quality of Data

To ensure data quality, questionnaires were pilot tested with a small number of school officials and parents from College Maranatha Secondary School before the actual research. During data collection, regular checks ensured all information was recorded properly. The use of both questionnaires and interviews helped obtain accurate information through triangulation.

Ethical Considerations

The school administration at College Maranatha Secondary School gave formal approval before any data collection activities. All participants were clearly informed about the research purpose, process, their rights, and their consent was obtained before participation. Participation was voluntary, with participants clearly informed of their right to withdraw at any time without consequences. Confidentiality and anonymity were maintained throughout the research process.

3. Results and Discussion
### Demographic Characteristics of Respondents

This section shows the demographic profiles of the participants in the research to provide context for understanding the findings. The study data was collected from 75 parents and 31 school officials at College Maranatha Secondary School.

Parent Demographics

The parent respondents showed a gender distribution of 70.7% female (53 respondents) and 29.3% male (22 respondents). This female dominance aligns with research by Mukamana, (2023) who found that mothers are more likely to participate in school-related activities in Rwanda. Regarding the relationship to students, 60.0% were mothers (45 respondents), 26.7% were fathers (20 respondents), and 13.3% were other guardians (10 respondents).

School Officials Demographics

Among the 31 school officials, teachers accounted for 77.4% (24 respondents), administrators for 16.1% (5 respondents), with one dean of studies and one trainer. Experience levels varied with 38.7% having 5-10 years' experience, 38.7% having less than 5 years, 16.1% having more than 15 years, and 6.5% having 11-15 years of experience in education.
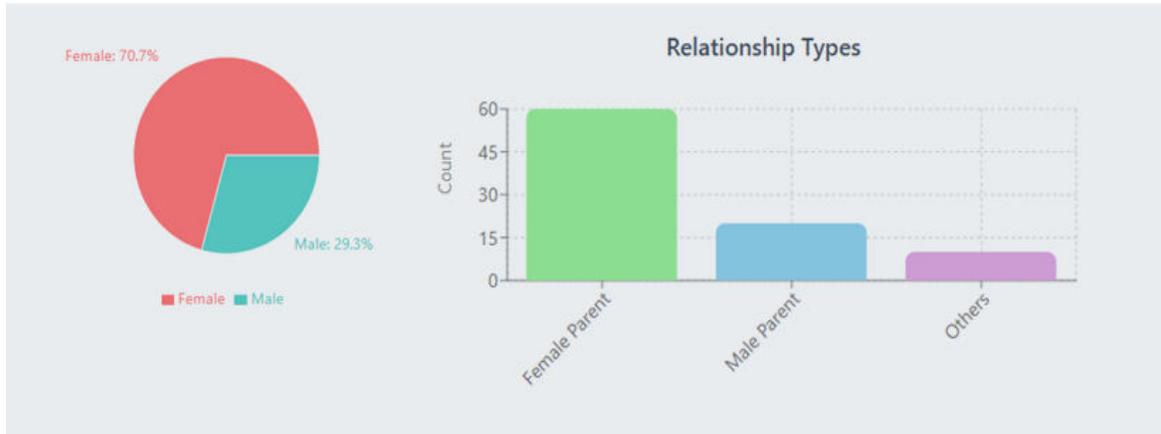
Fig. 1: Total Gender Distribution.

Fig. 2: Parents Gender Distribution.
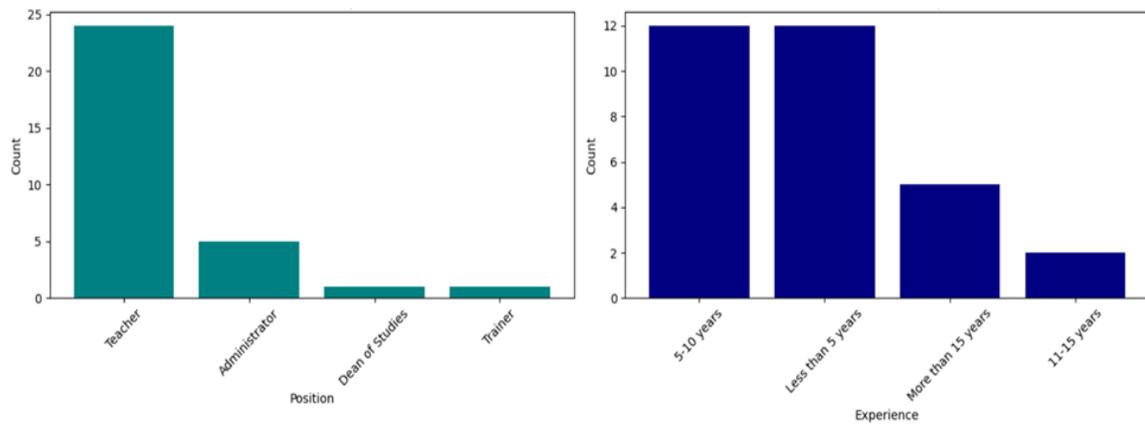
Fig. 3: School Officials by Position.

Fig. 4: School Officials by Experience.

Current WhatsApp Usage Patterns

This section examines how parents and school officials currently use WhatsApp, addressing the first research objective.

WhatsApp Usage Frequency

The analysis showed that 85.3% (64 parents) use WhatsApp daily, while only 5.3% (4 parents) never use the platform. Additionally, 4.0% use it rarely, 2.7% use it once weekly, and 2.7% use it 2-3 times weekly. This high daily usage rate shows strong potential for digital communication, but this potential is not being fully utilized.

Table 1: Frequency and Percentage Distribution of Usage Patterns.

Usage Frequency	Frequency	Percentage
Daily	64	85.3%
2-3 times per week	2	2.7%
Once per week	2	2.7%
Rarely	3	4.0%
Never	4	5.3%
Total	**75**	**100%**

Note. N= 75. All respondents accounted for in the total.

WhatsApp Group Participation

Despite high individual usage, only 33.3% (25 parents) participate in school WhatsApp groups while 66.7% (50 parents) remain outside organized school communication channels. This represents a critical gap between availability and actual participation.

**Table 2:** Usage Frequency by Group Membership Status.

Usage Frequency	Group Members	Non-Members	Total
Daily	20	44	64
2-3 times per week	1	1	2
Once per week	1	1	2
Rarely	3	0	3
Never	0	4	4
Total	**25**	**50**	**75**

Note. N = 75. Group Members *n* = 25, Non-Members *n* = 50.

Communication Types Preferences
Parents rated different types of WhatsApp communication based on importance using a scale from 1 to 5. Academic Updates received the highest rating at 4.55, followed by School Events at 4.31. Emergency Alerts were rated 3.70, Teacher Communication scored 3.67, while Homework Reminders received the lowest rating of 2.84.
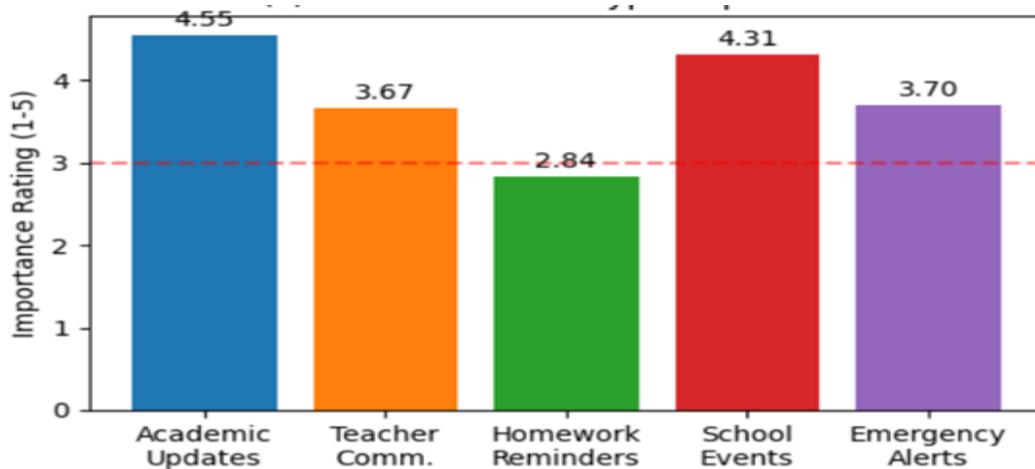

Fig. 5: Communication Type Importance.

Effects of WhatsApp Communication on Parent Engagement Levels
Engagement Improvement Effects
The analysis found positive effects of WhatsApp group membership on engagement improvement. Group members showed a mean improvement of 3.48/5.0 compared to 1.00/5.0 for non-members, representing a +2.48 points effect size. Statistical testing confirmed this effect is significant (t = 2.537, p = 0.0178).
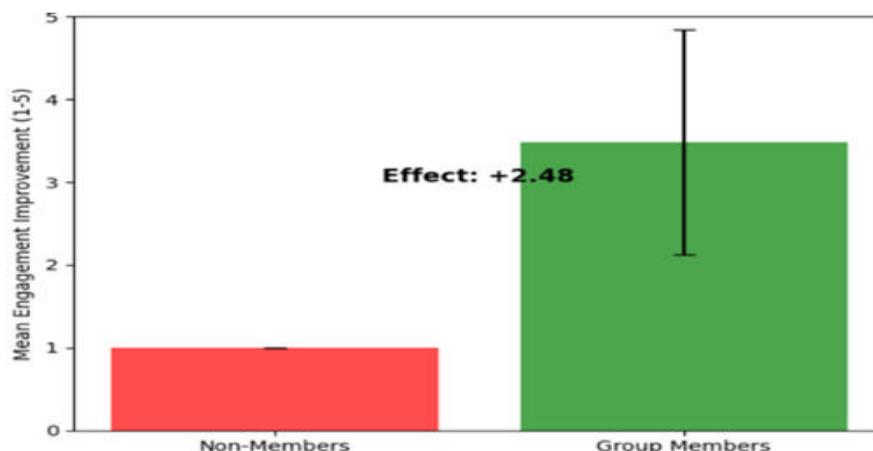
Fig. 6: Engagement Improvement Effects.

Communication Satisfaction

WhatsApp group members demonstrated significantly higher communication satisfaction (mean=3.68) compared to non-members (mean=1.54), with an effect size of +2.14 points. This difference was highly significant (t=10.365, p<0.0001).

Table 3: Comparison of Engagement and Communication Metrics between Group Members and Non-Members.

Metric	M Group Members	M Non-Members	Effect Size	t	p	Significant
Engagement Improvement	3.48	1.00	+2.48	2.537	.018	Yes
Communication Satisfaction	3.68	1.54	+2.14	10.365	< 00.1	Yes

Participation Level Effects

School officials reported positive effects with 64.5% (20 officials) observing significantly increased participation, 29.0% (9 officials) noting moderate increases, and only 6.5% (2 officials) reporting no change. This means 93.5% of officials confirmed positive effects of WhatsApp on parent participation.

Analysis of responses showed that time constraints were the most common barrier, mentioned by 9 parents (13.0%). Technical issues were mentioned by only 2 parents (2.9%), while the majority of responses (53 mentions or 76.8%) pointed to other reasons. The low mention of technical issues suggests that infrastructure is not the main challenge at College Maranatha Secondary School.

Barriers Limiting WhatsApp's Positive Effects
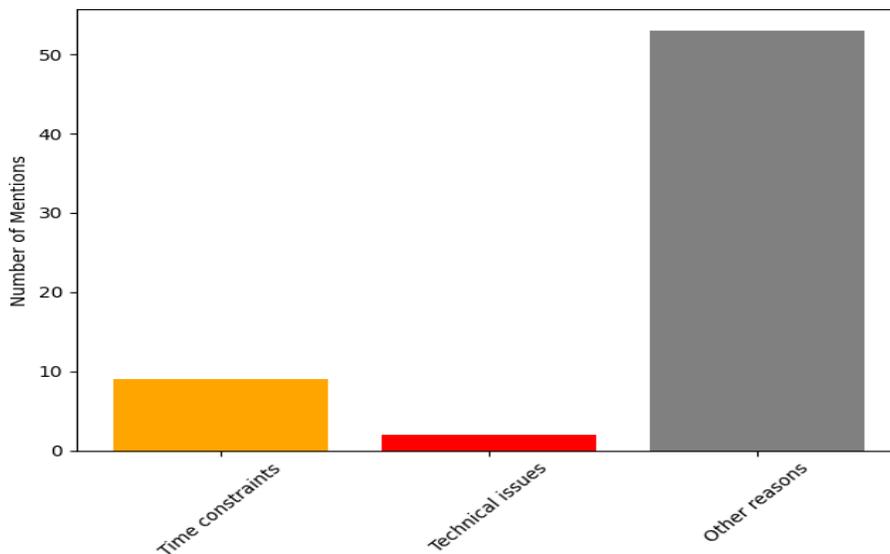
Fig. 7: Barriers Limiting WhatsApp Effectiveness.

Enablers That Enhance WhatsApp's Effects

Parents rated several factors based on importance for improving engagement. The highest priority factors, with ratings above 4.0, were Academic Updates (4.55) and School Events (4.31). Emergency Alerts (3.70) and Teacher Communication (3.67) were considered of medium priority. Homework Reminders received the lowest rating of 2.84.

Table 4: Mean Ratings and Priority Levels for Communications Factors.

| Factor	M Rating	Priority Level
Academic Updates	4.55	High
School Events	4.31	High
Emergency Alerts	3.70	Medium
Teacher Communication	3.67	Medium
Homework Reminders	2.84	Low

Note. M = mean rating on a 5-point scale. Priority levels: High (≥ 4.00), Medium (3.00-3.99), Low (<3.00).

Problem Identified from Data Analysis
The Main Problem
The data analysis revealed a 52% gap between WhatsApp usage and school group participation.

While 85.3% (64 parents) use WhatsApp daily, only 33.3% (25 parents) participate in school groups, leaving 39 parents as unutilized potential.
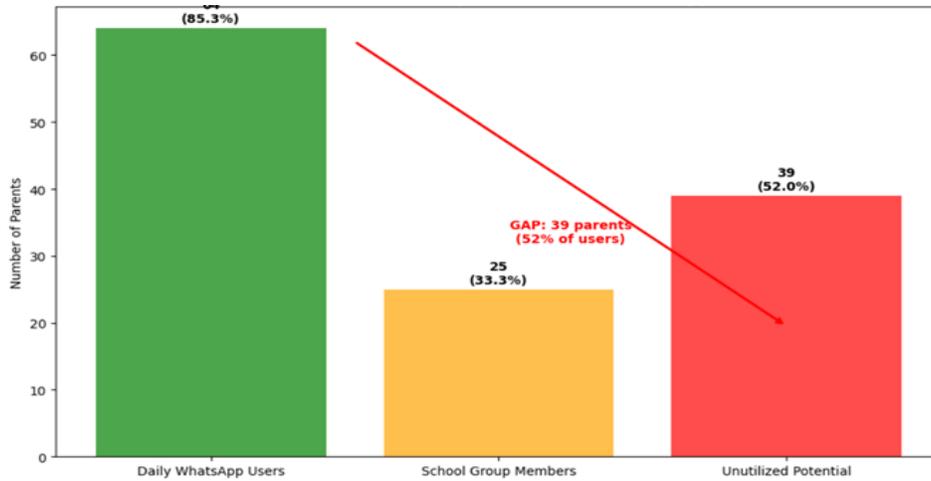
Fig. 8: The Critical Gap.

Why this is the Main Problem
This gap is the biggest issue because data shows that group members have 2.48 points higher engagement than non-members and 2.14 points higher satisfaction. Additionally, 93.5% of officials confirm that WhatsApp has positive effects, meaning the school is missing out on 52% of potential participants who already use WhatsApp.

Impact of This Problem
The impact is significant because non-members have an engagement level of only 1.0 out of 5, while members achieve 3.5 out of 5. If the 39 parents who are not currently in groups joined, overall parent engagement could increase by approximately 97.5 points (39 × 2.5).

Hypothesis Testing
The study tested the hypothesis that WhatsApp communication has no significant positive effects on parent engagement levels at College Maranatha Secondary School.

Test Results
1). Engagement Improvement Effect: T-statistic = 2.537, p-value = 0.0178 (Significant)
2). Satisfaction Effect: T-statistic = 10.365, p-value < 0.0001 (Significant)

The null hypothesis is rejected. WhatsApp communication has significant positive effects on parent engagement. However, these effects are only realized through structured group participation, not individual usage.

Solutions Analysis
Based on the identified problem of the 52% gap between usage and participation, three potential solutions were analyzed using the Feasibility-Desirability-Viability framework.

Solution A: Mandatory WhatsApp Group Enrolment
This solution scored 7 out of 15 (Feasibility: 2/5, Desirability: 2/5, Viability: 3/5). It would be difficult to enforce, and parents may resist forced participation, resulting in low engagement quality.

Solution B: Incentivized Voluntary Participation
This solution scored 8 out of 15 (Feasibility: 3/5, Desirability: 3/5, Viability: 2/5). While parents would appreciate rewards, the approach could be expensive long-term and effectiveness may diminish over time.

Solution C: Structured Communication Enhancement Program
This solution scored 14 out of 15 (Feasibility: 5/5, Desirability: 4/5, Viability: 5/5). It can be implemen-

ted using existing infrastructure with no additional costs, addresses parents' time issues while providing valuable content, and builds on proven effects from data.

Recommended Best Solution

Based on the analysis, Solution C, the Structured Communication Enhancement Program, is the recommended approach. It addresses the primary barrier of time constraints, focuses on high-priority content like academic updates and school events, and builds on existing daily WhatsApp use. It also requires minimal new resources, making it the most practical and sustainable solution.

Implementation Strategy

Phase 1: Foundation Building (Month 1)
Weeks 1-2 involve system setup by creating content templates in Kinyarwanda and English, training 3 teachers as WhatsApp group moderators, and establishing the structured communication schedule. Weeks 3-4 focus on current member enhancement by implementing the structured schedule with existing group members and collecting feedback through quick polls.

Phase 2: Targeted Expansion (Month 2)
Weeks 5-6 involve targeted recruitment by identifying the 39 daily WhatsApp users not in groups and sending personalized invitations highlighting the benefits. Weeks 7-8 involve onboarding new members through welcome packages, buddy systems, and first-week check-in calls.

Phase 3: Monitoring and Optimization (Month 3)
Weeks 9-10 include monitoring and adjustment activities with weekly engagement metrics review and parent satisfaction surveys. Weeks 11-12 focus on sustainability planning by documenting best practices and establishing long-term governance structure.

Success Metrics and Resource Requirements

Short-term goals include increasing group participation from 33.3% to 60%, achieving 3.5 out of 5 average satisfaction score, and maintaining 90% member retention rate within the first 3 months. Resource requirements include 3 teacher moderators working 2 hours per week each, 1 coordinator working 5 hours per week, and parent volunteers. The total Year 1 budget is estimated at 950,000 RWF.

This research successfully explored the effects of WhatsApp communication on parent engagement at College Maranatha Secondary School in Nyanza District, Rwanda. The study met all three research objectives and provided strong evidence that Whats-App has a significant positive effect on parent engagement, but only when implemented through structured group participation. The findings revealed a key gap between WhatsApp availability and usage. Although 85.3% of parents use WhatsApp daily, showing good access and digital literacy, only 33.3% participate in school WhatsApp groups. This 52% gap represents 39 parents who could benefit from digital communication but are currently not involved. School officials also overwhelmingly support WhatsApp implementation, with 93.5% reporting positive effects on parent participation. The study revealed that WhatsApp communication has a statistically significant positive effect on parent engagement. Group members had 2.48 points higher engagement and 2.14 points higher satisfaction with communication compared to non-members. These results indicate strong potential for improving parent-school relationships. Importantly, the study found that structured group participation, rather than individual use of WhatsApp, is necessary to achieve these positive effects.

Time constraints were identified as the primary barrier to engagement, mentioned in 13.0% of responses, while technical and financial barriers were minimal. This finding challenges the assumption that technology access is the main obstacle in developing regions. Parents prioritized Academic Updates and School Events as the most important communication types, providing useful insights for content strategies moving forward. This research adds to digital communication theory in education by showing that simply having access to technology does not automatically lead to engagement. The findings emphasize the need for structured communication strategies over just offering access, supporting previous research by Uwimana and Habimana, (2024) on structured versus unstructured digital communication.

Comparison with Previous Studies

The findings align with recent research from East African countries. Mugisha and Nzeyimana, (2024) in

Kigali District found that schools using organized digital communication had 40% more parent participation compared to schools using traditional methods. Similarly Mwamba, (2023) in Tanzania showed that parent-teacher communication through WhatsApp groups increased homework completion by 35% and improved student attendance by 22%. The identification of time constraints as the primary barrier is consistent with regional findings. Research by Save the Children, (2023) in Rwanda found that 67% of parents said lack of time was the main reason for not participating in school WhatsApp groups. This finding matches research from Tanzania where Moshi and Ndunguru, (2024) found that 71% of parents mentioned time as their biggest challenge.

Limitations

This research had some limitations that were considered. Since the study was only conducted at College Maranatha Secondary School, the findings might not apply to all schools in Rwanda. The time available to conduct the research was also limited by the school calendar. Additionally, language diversity within the parent population meant that many participants might have preferred communication in languages other than English, which affected their comfort level with the research process.

4. Conclusion and Recommendations

This research successfully explored the effects of WhatsApp communication on parent engagement at College Maranatha Secondary School and provided strong evidence that WhatsApp has a significant positive effect on parent engagement when implemented through structured group participation. The study identified a critical 52% gap between WhatsApp availability (85.3% daily users) and school group participation (33.3%), representing untapped potential for improved parent engagement. Statistical analysis confirmed that WhatsApp group members demonstrate significantly higher engagement (mean difference = 2.48 points, p=0.0178) and satisfaction (mean difference = 2.14 points, p<0.0001) compared to non-members. Time constraints emerged as the primary barrier (13.0% of responses), while technical and financial barriers were minimal, challenging assumptions about technology access in developing regions. Parents prioritized Academic Updates (4.55/5.0) and

School Events (4.31/5.0) as the most important communication types. The hypothesis received support with an important qualification: structured WhatsApp communication through organized groups proved essential for effectiveness, while individual platform usage alone showed no significant impact on engagement. This finding emphasizes that implementation strategy matters more than technology adoption. The recommended Structured Communication Enhancement Program scored highest (14/15) in feasibility-desirability-viability analysis and offers a sustainable, low-cost approach to bridge the participation gap. Implementation requires minimal resources (950,000 RWF annually) and builds on existing infrastructure and daily WhatsApp usage patterns. This research contributes to digital communication theory in education by demonstrating that technology access alone is insufficient for engagement; structured implementation strategies are essential. The findings have practical implications for secondary schools across Rwanda and similar contexts in East Africa.

Based on the research findings, the following recommendations are made to stakeholders:

For College Maranatha Secondary School –

1). Launch the WhatsApp engagement enhancement system by implementing structured communication schedules with current 25 group members as pilot participants

2). Enroll the 39 daily WhatsApp users who are not in school groups, setting a goal to reach 60% participation within 3 months

3). Establish communication guidelines including one message per day maximum and response windows from 5:00-7:00 PM

4). Create monitoring and evaluation systems to track weekly engagement metrics and conduct monthly satisfaction surveys

5). Scale the program to achieve 85% parent participation

For Other Secondary Schools in Rwanda

1). Focus on structured group communication rather than individual messaging to maximize engagement benefits

2). Assess actual WhatsApp usage patterns among parents before implementing communication programs

3). Address time management concerns in communication strategies as this emerged as the primary barrier

For Future Researchers
- Conduct longitudinal studies to examine long-term effects of improved WhatsApp communication on student academic performance outcomes
- Investigate implementation strategies for converting individual WhatsApp users to group participants in different school contexts
- Explore the relationship between structured digital communication and specific academic outcomes like homework completion rates and exam performance

5. Author Contributions

The authors confirm collective responsibilities for the study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

6. Acknowledgement

7. Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this research paper.

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