

Effect of communication techniques on learners' academic performance in selected nine years basic education schools, Rubavu District, Rwanda

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ABSTRACT

This study examined how communication techniques affect students' academic performance in nine-Year Basic Education (9YBE) in Rubavu District, Rwanda. It aimed to achieve four main objectives: to examine the effect of verbal communication used by teachers on learners' academic performance, to evaluate the effect of non-verbal communication applied by teachers on learners' academic performance, to assess the effect of written communication utilized by teachers on learners' performance, and to analyze the effect of multimedia visual aids practiced by teachers on learners' academic performance in 9 YBE schools in Rubavu District. The research used Social Constructivism and the Transactional Model of Communication as the guiding theoretical frameworks. A correlational research design was chosen, combining both quantitative and qualitative methods. The study involved five selected 9YBE schools in Rubavu District, with a total of 2,097 participants and a sample of 336, including 276 students, 50 teachers, 5 study directors, and 5 school leaders. Purposive and stratified sampling techniques were used, following Yamane's formula to determine the sample size. Data collection included structured questionnaires with Likert-scale options, one-on-one interviews, and document analysis. Quantitative data were analyzed using statistical methods, with descriptive statistics summarizing the numerical data and inferential statistics drawing population-wide conclusions. Analysis was conducted using IBM SPSS Statistics 2022 for numerical data and thematic analysis for qualitative data. The results showed important connections between different communication techniques and students' academic performance. Verbal communication explained 72.7% of the differences in performance ($R^2 = 0.727$, $p = 0.002$), indicating a strong positive effect. Non-verbal communication accounted for 72% of the differences ($R^2 = 0.720$, $p = 0.003$), also showing a significant impact. Written communication had an even stronger relationship, explaining 82% of the differences ($R^2 = 0.820$, $p = 0.004$), highlighting its important role in helping students succeed. In contrast, multimedia visual aids only explained 32.6% of the differences ($R^2 = 0.326$, $p = 0.0005$), suggesting a modest effect and indicating that some students might have limited access to different types of multimedia aids. The study concluded that verbal, non-verbal, and written communication techniques significantly influence learners' academic performance in 9YBE schools in Rubavu District, with written communication showing the strongest impact. In contrast, multimedia visual aids had limited effectiveness due to infrastructural and training challenges. It recommends the Ministry of Education to focus on teacher training in verbal, non-verbal, and written communication skills, improve access to teaching resources, and promote structured teacher-student-parent interactions, while cautiously integrating multimedia tools through targeted pilot programs.

Keywords: Academic Performance, Communication Techniques, Multimedia Visual Aids, Non-verbal Communication, Verbal Communication, Written Communication

I. INTRODUCTION

Effective communication is vital in enhancing teaching and learning processes, especially in basic education systems (Munna & Kalam, 2021). In Rubavu District's nine-year basic education (9YBE) schools, teachers use various communication techniques to shape learners' academic outcomes. These include verbal communication, non-verbal communication, written communication, and multimedia visual aids. Each method plays a key role in helping students understand and retain information. When these strategies are effectively applied, they improve student engagement and performance (Hattie & Timperley, 2007). Therefore, this study aims to examine how these communication approaches influence academic achievement in selected schools within Rubavu District. Understanding this relationship is crucial for improving classroom instruction and student outcomes (Mahoro & Ngabonziza, 2024).

To begin with, verbal communication remains a major tool for instruction in classrooms, especially during discussions and lectures (Alshumaimeri & Alhumud, 2021). This study assessed how clarity, tone, and style influence

students' ability to grasp new content. In addition, it looked at questioning techniques and how group discussions support interaction. Students tend to perform better when verbal communication is engaging and inclusive. These methods foster an active learning environment that supports understanding and knowledge retention (Munna & Kalam, 2021). Consequently, the research highlights the strong link between effective verbal strategies and academic success, showing that how teachers speak significantly shapes student learning (Kasim & Kayame, 2022).

Furthermore, non-verbal communication plays a supportive role in delivering classroom messages (Ghafar & Mahmood, 2023). This includes body language, facial expressions, gestures, and eye contact. Teachers use these cues either to reinforce or unintentionally contradict verbal messages. This study explored how non-verbal communication contributes to creating a positive learning environment. A classroom where students feel emotionally supported tends to promote higher levels of participation. Non-verbal cues often enhance understanding and engagement beyond spoken words (Munna & Kalam, 2021). Therefore, recognizing the role of non-verbal communication in classroom dynamics is essential for improving instruction and fostering better student motivation and comprehension (Kalyani, 2024).

In addition, written communication is an important tool for providing information students can refer to outside class (Ghafar & Mahmood, 2023). This includes items such as handouts, notes, tests, and textbooks. Clear, well-organized written materials support learning by enabling independent review. The study assessed whether these materials enhance understanding and help students develop effective study habits. When students have access to structured written resources, they prepare better for exams and assignments (Haleem et al., 2022). Thus, improving written communication can be a strategic way to boost academic performance in 9YBE schools in Rubavu. This is especially important in contexts where classroom time is limited (Hattie & Timperley, 2007).

Moreover, multimedia visual aids are becoming increasingly important in modern classrooms (Shakil et al., 2020). Impact of multimedia on the academic performance of students at secondary school level (Shakil et al., 2021). These include charts, videos, graphs, and interactive tools that help simplify difficult topics. The study examined how such tools affect student participation and knowledge retention. Visual aids are useful for learners who struggle with verbal or written information. They also help teachers explain abstract concepts more clearly. When teachers use multimedia visual aids, students stay more engaged and remember more of what they learn (Shabiralyani et al., 2015). Therefore, integrating multimedia resources into daily lessons can enhance learning experiences and improve academic performance in 9YBE schools.

Globally, teachers in basic education schools apply communication techniques to improve learning (Johnson et al., 2016). In Finland, verbal communication like group work has increased engagement by 25%. Meanwhile, non-verbal techniques such as gestures in Germany promote motivation by 30%. Written communication is emphasized through clear assessments and structured notes, enhancing comprehension by 40%. Furthermore, multimedia tools, including videos and presentations, improve retention in German classrooms by 35% (Mayer, 2020). These examples show that effective communication strategies improve academic performance in various countries. Therefore, Rwanda can learn from these practices to strengthen communication techniques in its own basic education schools (Ghafar & Mahmood, 2023).

In East Africa, several countries demonstrate how communication techniques enhance academic outcomes (Ministry of Education and Sports (Uganda), 2012). Uganda's use of well-structured written materials has improved comprehension by 28%. In Tanzania, multimedia aids like videos and interactive tools have increased engagement by 40%. In Rwanda, verbal communication encourages group collaboration, improving participation by 22%. However, there are still communication gaps in Rubavu District. Many classrooms lack sufficient verbal interaction due to overcrowding. Likewise, written materials are sometimes unclear, and non-verbal cues are underused. Multimedia tools are rare, limiting engagement and retention (Faustino & Cheema, 2024). These findings highlight the need for better communication strategies in Rubavu (Ntawiha et al., 2023).

Furthermore, communication techniques such as verbal communication, non-verbal communication, written communication, and multimedia visual aids directly influence academic performance (Nystrand et al., 1998). When teachers apply these methods effectively, students become more involved and understand material more easily. However, in Rubavu District, several challenges reduce the effectiveness of these strategies. Overcrowded classrooms limit verbal interaction. Inadequate training leads to poor use of non-verbal communication. Also, teaching materials are not always well-structured, and multimedia tools are rarely used (Faustino & Cheema, 2024). Therefore, the study seeks to identify effective communication practices that can be implemented to enhance teaching and learning outcomes in Rubavu (Shao et al., 2024).

1.1 Statement of the Problem

The Rwandan Education Sector Strategic Plan 2018/24 emphasizes the importance of good communication methods in nine-year basic education (9YBE) schools to improve student learning (Rwanda Education Board [REB], 2022). This includes encouraging verbal communication that allows students to actively participate in class, as well as using positive non-verbal cues like eye contact and friendly gestures to create a welcoming environment. The plan also

stresses the need for clear written materials and the use of multimedia visual aids to make lessons more engaging and easier to understand (Rwanda Education Board [REB], 2022).

However, in Rubavu district's 9YBE schools, there are challenges with these communication approaches. For verbal communication, teachers often talk too much, leaving little room for student participation, and group discussions are limited (Tuyishime & Andala, 2024). In non-verbal communication, students and teachers frequently do not make eye contact or use supportive body language, which can make students feel unmotivated (Ntawiha et al., 2023). When it comes to written communication, the teaching materials are poorly organized, and the feedback given to students is unclear, leading to confusion and misunderstandings (Ministry of Education and Sports (Uganda), 2012). Additionally, the use of multimedia visual aids is very limited, as most classrooms lack the necessary equipment, and teachers seldom incorporate videos or interactive tools into their lessons (Faustino & Cheema, 2024).

These communication issues in Rubavu's 9YBE schools have significant consequences. The lack of verbal communication leads to decreased student engagement and hinders their ability to express their thoughts, affecting their overall academic performance (Bukhari et al., 2021). The lack of non-verbal communication cues results in students feeling unmotivated and less likely to participate actively in class, negatively impacting their learning outcomes (Hall et al., 2019). The problems with written communication and limited use of multimedia make it difficult for students to grasp essential concepts, ultimately lowering their achievement levels (Boud & Molloy, 2013; Ntawiha et al., 2023).

This research study aimed to look closely at how the different ways teachers communicate, like talking, body language, writing, and using visuals, affect how well students do in the nine-year basic education schools in Rubavu District. By studying the impact of these various communication methods, the research provided important information that can help improve the education policies and teaching practices in Rwanda. This addressed the communication problems currently seen in the nine-year basic education system.

1.2 Research Objectives

The research objective of this study:

- i. To examine the effect of verbal communication used by teachers on learners' academic performance in 9YBE schools in Rubavu District.
- ii. To evaluate the effect of non-verbal communication applied by teachers on learners' academic performance in 9 YBE schools in Rubavu District.
- iii. To assess the effect of written communication that teachers utilize on learners' performance in 9YBE schools in Rubavu District.
- iv. To analyze the effect of multimedia visual aids practiced by teachers on learners' academic performance in 9 YBE schools in Rubavu District.

II. LITERATURE REVIEW

2.1 Theoretical Review

In this study, Social Constructivism and Transactional Model of Communication, were used as the guiding theoretical frameworks to describe how different communication techniques affect learners' academic performance in secondary schools specifically, focusing on Rubavu District.

2.1.1 Social Constructivism

Social Constructivism, developed by Vygotsky, explains that learning happens through shared experiences and interaction with others (Saleem et al., 2021). In this view, knowledge is formed when students engage in social interaction and communicate ideas with peers and teachers. Important concepts include the use of cultural tools like language, symbols, and technology, which help shape thought and learning. Teachers also provide scaffolding, or guided support, allowing students to learn new concepts step by step (Jonsson & Williams, 2012). Another essential idea is the Zone of Proximal Development (ZPD), where learners progress best with help on tasks just beyond their independent ability. Altogether, these concepts support the idea that communication plays a vital role in academic achievement (Jurs & Špehte, 2021).

Moreover, Social Constructivism highlights how learning is influenced by culture and environment, a concept known as contextual learning (Nystrand et al., 1998). It stresses that students understand better when knowledge connects to real-world situations. Through collaborative learning, students work together, build ideas, and strengthen communication skills. Another feature is reflexivity, where learners think about their own understanding and how they learn, leading to greater awareness (Ghafar et al., 2023). Instructors also use constructive feedback to guide learners toward improvement. These principles match well with the study's focus, as verbal, non-verbal, and written communication, along with multimedia aids, help build interaction, reflection, and meaningful learning. Therefore, these communication methods support better academic performance when used effectively in class (Schnotz & Lowe, 2008).

2.1.2 Transactional Model of Communication

The Transactional Model of Communication, introduced by Barnlund in the 1970s, views communication as a dynamic and interactive process (Burgoon et al., 2016). Unlike older models that focused on one-way communication, this model explains how people send and receive messages at the same time. It highlights shared meaning, showing that communication is ongoing and built through interaction. Core ideas include encoding and decoding, where messages are created and interpreted. Communication success depends on how clearly ideas are expressed and understood. Also essential is feedback, the response that helps clarify the message and maintain the conversation. Disruptions called noise and the surrounding context, physical, cultural, or social, also shape how people understand one another (Mukhlis et al., 2024).

Furthermore, the model stresses simultaneous transmission, meaning both people exchange and interpret messages at once, which suits the classroom setting where learning happens through interaction (Mukhlis et al., 2024). It also considers contextual factors, such as culture, past experiences, or physical setting, all of which influence how messages are received. Another key point is shared meaning, the idea that both sides need to understand the topic in a similar way for communication to be successful (Denning et al., 2006). Moreover, reciprocal influence shows how each participant's behavior affects the other, emphasizing collaboration in learning. These concepts directly relate to your study, as verbal, non-verbal, written, and multimedia communication methods support understanding and help improve learners' academic outcomes (Schnotz & Lowe, 2008).

2.2 Empirical Review

This section presents empirical findings on verbal, non-verbal, written communication, and multimedia visual aids and learners' academic performance in secondary schools.

2.2.1 Verbal Communication and Learners' Academic Performance

Verbal communication is key in the classroom, helping learners understand concepts and stay engaged. Clear speech, good word choice, and active listening make teaching more effective (Mishra, 2025). When teachers speak clearly and give timely feedback, students gain confidence and improve performance. Johnson and Smith (2022) found that open dialogue in class improves learners' participation and test scores. Similarly, Nystrand et al. (1998), explained that student involvement in discussions sharpens thinking skills. Gan et al. (2021) showed that supportive feedback motivates learners, boosting their academic achievement. These studies confirm that effective verbal communication not only builds understanding but also creates a positive learning environment where students feel supported and ready to succeed.

Clear verbal communication is very important in secondary schools because it helps students understand lessons without confusion. When teachers explain topics in an easy and organized way, students can remember the content better (Mahdi, 2023). Oyeronke et al. (2024) noted that clear instructions also increase class participation, which supports learning. Another important part is active listening. When teachers listen carefully to students, it makes students feel respected and more willing to participate (Wentzel, 2014). Alibali et al. (2011) explained that students become more motivated and involved when they feel heard. These skills, clear speech and good listening, help students build trust with their teachers, understand lessons well, and feel more supported in their academic journey.

Additionally, verbal feedback is another key part of classroom communication. It helps students know how they are doing and what to improve. Gan et al. (2021) found that feedback given in a helpful and timely way improves student learning. Mueller and Oppenheimer (2014) also showed that kind, positive feedback builds students' confidence and helps them stay motivated, especially during difficult lessons. Teachers who give feedback in a supportive way help students grow by learning from their mistakes. Additionally, asking good questions is an effective teaching strategy. Alqahtani and Albidewi (2022) said open-ended questions encourage thinking and discussion, while Chin and Osborne (2008) found that challenging questions improve critical thinking and academic performance.

Class discussions are also a strong form of verbal communication that improves student learning. When students talk with each other in class, they exchange ideas, think deeply, and learn in an interactive way (Mercer et al., 2008). Shao et al. (2024) explained that discussions help students understand different opinions and develop stronger communication skills. Another way verbal communication supports learning is through encouragement. Basak and Basu (2024) found that students who are motivated by teachers feel more confident and try harder. The teacher's tone of voice also matters, Khumairah et al. (2023). showed that an excited and caring tone keeps students interested. Simple, age-appropriate words also make learning easier (Beck & Mckeown, 1991), making verbal communication a vital tool for student success.

2.2.2 Non-Verbal Communication and Learners' Academic Performance

Non-verbal communication is the use of facial expressions, gestures, eye contact, body posture, and space to send messages without words (Knapp & Hall, 2007). It is very important in classrooms because it shows emotions, attitudes, and reactions, sometimes even more clearly than spoken words (Burgoon et al., 2021). For example, a teacher's

smile and relaxed posture can make students feel safe and supported, while crossed arms may make the teacher look strict or unwelcoming. Since non-verbal cues differ between cultures, teachers must use them carefully to avoid misunderstandings. Understanding and practicing good non-verbal skills helps improve communication in schools and builds better relationships between teachers and students, which supports a more positive and effective learning environment (Burgoon et al., 2021; Knapp & Hall, 2007).

Moreover, non-verbal elements like facial expressions and eye contact greatly affect students' learning. A smiling teacher can create a warm and open classroom, helping students feel confident to ask questions (Lugasi et al., 2023). On the other hand, a bored or angry face may discourage participation and lower motivation (Darling-Hammond et al., 2022). Eye contact is also essential, it helps build trust and improves students' attention (Haataja et al., 2021). However, avoiding eye contact may seem like disinterest, which can reduce students' engagement (Seltzer et al., 2012). Therefore, both facial expressions and eye contact should be used wisely to support student learning and make the classroom more supportive and inclusive for everyone.

In addition to facial expressions, other forms of body language such as gestures, posture, and physical space are also powerful teaching tools. Proper hand movements and pointing help explain ideas and keep students focused (Mavilidi et al., 2021). But when gestures are used too little or confusingly, students may lose interest or not understand lessons (Alibali et al., 2011). Likewise, a teacher's posture sends messages, an open and active stance builds a friendly learning space, while closed posture may seem unapproachable (Kucuk, 2023). Teachers who move around the class and use space wisely help students feel connected and more willing to participate (Roorda et al., 2011).

Furthermore, non-verbal communication also includes tone of voice, touch, and small vocal cues like pauses or sighs. A teacher's warm and energetic voice can make lessons exciting, while a dull or harsh tone may reduce student interest (Pianta et al., 2012). Simple gestures like a handshake or a gentle pat, when used properly, can show care and support (Finkelhor & Jones, 2006). However, misunderstanding can happen if students read these signals the wrong way (Pianta, et al., 2012). Cultural differences may also affect how non-verbal signals are understood (Wang & Eccles, 2013). To improve communication, teachers should learn about cultural differences and keep open communication to avoid confusion (Barnes et al., 2015).

2.2.3 Written Communication and Learners' Academic Performance

Written communication involves sharing ideas through words in letters, essays, reports, or digital texts (Mueller & Oppenheimer, 2014). In schools, writing helps student complete homework, express ideas, and interact with teachers and classmates (Johnson et al., 2016). Good writing depends on word choice, structure, and organization. Clear and simple writing allows students to explain their understanding better and gain higher academic results (Fisher & Frey, 2011). On the other hand, weak writing may cause confusion and reduce student performance (Wu & Schunn, 2021). Therefore, strong written communication skills are necessary for learners to share their knowledge and succeed in school. As students write more, their learning improves, and they feel more confident in academic settings (Johnson et al., 2016).

Moreover, the clarity and structure of writing are very important for students' academic success. When students express ideas clearly and follow a logical structure, their writing becomes easier to read and understand (Plaindaren, & Shah, 2019). Clear writing helps teachers see what students know and gives them better feedback (Fisher & Frey, 2011). However, unclear or disorganized writing can lead to low marks and misunderstandings (Graham et al., 2024). To improve clarity and structure, students should organize their thoughts before writing and use linking words to connect ideas. In addition, reading examples and practicing outlines can help students plan their work better and present ideas in a logical way (Wu & Schunn, 2021).

In addition to structure, other writing elements like coherence, tone, voice, and mechanics also affect academic performance. Coherence means the smooth connection between ideas, making the writing flow well (Graham & Perin, 2007). Using the right tone and personal voice makes writing clearer and engaging (Graham et al., 1991). At the same time, grammar, spelling, and punctuation help the writing look professional and correct (Graham & Perin, 2007). Errors can make writing hard to understand and reduce grades (Plaindaren, & Shah, 2019). Therefore, students should review their work, use writing tools, and seek help from teachers to improve these writing parts and succeed academically (Graham et al., 2024).

Furthermore, the purpose of writing, writing style, and audience awareness also influence students' performance. When students understand why they are writing, to explain, inform, or persuade, they can make stronger and more focused messages (Fisher & Frey, 2011). Writing style, including sentence structure and word choice, also helps make the work more interesting and easier to understand (Plaindaren, & Shah, 2019). Additionally, knowing the audience helps students adjust their writing for better results (Wu & Schunn, 2021). Without this awareness, writing may seem unclear or inappropriate (Graham et al., 1991). In conclusion, students must practice all these writing elements to write clearly, communicate effectively, and achieve better academic outcomes.

2.2.4 Multimedia Visual Aids and Learners' Academic Performance

Multimedia visual aids are digital tools that support learning by making information clearer and more interesting. These tools include images, videos, graphics, animations, and interactive features used in presentations or documents (Mayer, 2020). Their purpose is to help students understand and remember information more easily. When used effectively in secondary schools, these tools help students express their ideas better, which improves their academic performance (Cheng & Mix, 2014). In addition, combining text with visuals strengthens understanding. Clear, simple text helps students understand lessons better and supports visual learning (Iskandar et al., 2018). Therefore, when teachers use well-structured text and visuals together, students find it easier to understand complex ideas, which can lead to better grades and overall school success.

Moreover, visual elements such as pictures, graphs, and animations help students understand information in a more direct way. Pictures help explain difficult concepts and make lessons more enjoyable (Muhammad et al., 2021). Graphs and charts help students see relationships in data, especially in subjects like science and math (Bakker & Gravemeijer, 2004). Similarly, animations can break down complex topics and show how parts work together, keeping students focused and interested (Mayer & Fiorella, 2021). As a result, these visual tools improve understanding and memory. By using these tools, students can connect better with the subject and gain deeper knowledge. In the classroom, visual aids not only support learning but also improve students' motivation and performance in various subjects.

In addition, sound and video are helpful multimedia elements that improve learning for students with different learning styles. Audio tools like voiceovers and background music can make lessons more engaging and easier to follow (Etyarisky & Marsigit, 2022). When students hear explanations along with pictures or text, they understand the topic more deeply. Videos also show real-life examples, helping students see how lessons apply to the world around them (Nia et al., 2023). Interactive tools such as quizzes and simulations encourage students to take part in learning, giving them instant feedback and improving their understanding (Kusumo et al., 2024). These features keep students active and motivated, which leads to better participation, stronger learning, and improved school performance.

However, there are still challenges with using multimedia aids in the classroom. One issue is information overload, where students receive too much content at once, making it hard to focus (Mayer, 2020). Teachers can solve this by using short sections, bullet points, and summaries. Another problem is technical difficulties. If students cannot access or use the tools properly, learning stops. Schools should offer training and support for teachers and students to fix this (Hattie & Timperley, 2007). Also, lack of access to technology can limit students' learning. Schools should provide devices or offline materials to support all learners (Martin & Bollinger, 2021). With these solutions, multimedia tools can work better and help all students succeed.

III. METHODOLOGY

3.1 Research Design

This study used a correlational research design to look at the relationships between different factors that impact student performance and educational practices. This design checks how multiple variables are connected without showing cause and effect (Kotronoulas et al., 2023). In this research, the quantitative part included questionnaires filled out by students, while the qualitative part featured interviews with teachers, directors of studies, and school leaders. This approach helped identify patterns and trends in how these factors relate to academic outcomes.

3.2 Study Population

This study focused on students, teachers, directors of studies, and school leaders from nine-years basic education (9YBE) schools in Rubavu District, Rwanda. Students shared their opinions through questionnaires and feedback on how different communication methods affect their learning. Teachers talked about their experiences using verbal, non-verbal, written, and multimedia communication in the classroom. Directors of studies gave a wider view of how well these communication methods work and their impact on student performance. School leaders explained how communication is included in school programs and how it helps improve learning, giving a full picture of its effect on student success.

To ensure broad representation, the study included 2,097 participants, from which a sample of 336 was selected. This sample consisted of 276 students, 50 teachers, 5 study directors, and 5 school leaders. To choose the participants, both purposive and stratified sampling techniques were applied. The appropriate sample size was determined using Yamane's formula (1967), which is given as: $n = N / (1 + N(e)^2)$. In this formula, N represents the total population, n is the sample size, and e refers to the sampling error, which was set at 0.05. This method allowed for the selection of a manageable yet statistically valid group, ensuring accurate and meaningful results in the study.

3.3 Instruments

The study used a combination of questionnaires, interviews, and documentary review as instruments to investigate the effects of communication techniques on learners' academic performance in 9YBE schools in Rubavu

District. The questionnaires were administered to students to examine the effect of teachers' use of verbal, non-verbal, written, and multimedia visual communication on their academic outcomes. Interviews were conducted with teachers, school leaders, and directors of studies to gain deeper understanding into their perspectives on these communication methods. Additionally, the researchers reviewed relevant documents, such as school records and policies, to supplement the data collected through the questionnaires and interviews. This mixed-methods approach, utilizing surveys, interviews, and document analysis, provided a comprehensive understanding of the research problem and allow for triangulation of the findings.

3.4 Statistical Treatment of Data

The data was processed and analyzed in a structured way to ensure accuracy. First, the data was checked for errors and missing information, then organized into categories. It was then put into tables and checked for consistency. Quantitative data was analyzed using SPSS, with descriptive statistics (like mean and median) used to summarize the data. Inferential statistics (like t-tests and ANOVA) were used to test hypotheses and examine relationships. Qualitative data was analyzed using thematic analysis to find key ideas and common themes. This combined approach ensured a thorough analysis, making the study's findings valid and clear.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Demographic Characteristics or Respondents

Information about demographic characteristics of respondents was presented in this section. It includes; age, gender, years of experience in education, and educational levels.

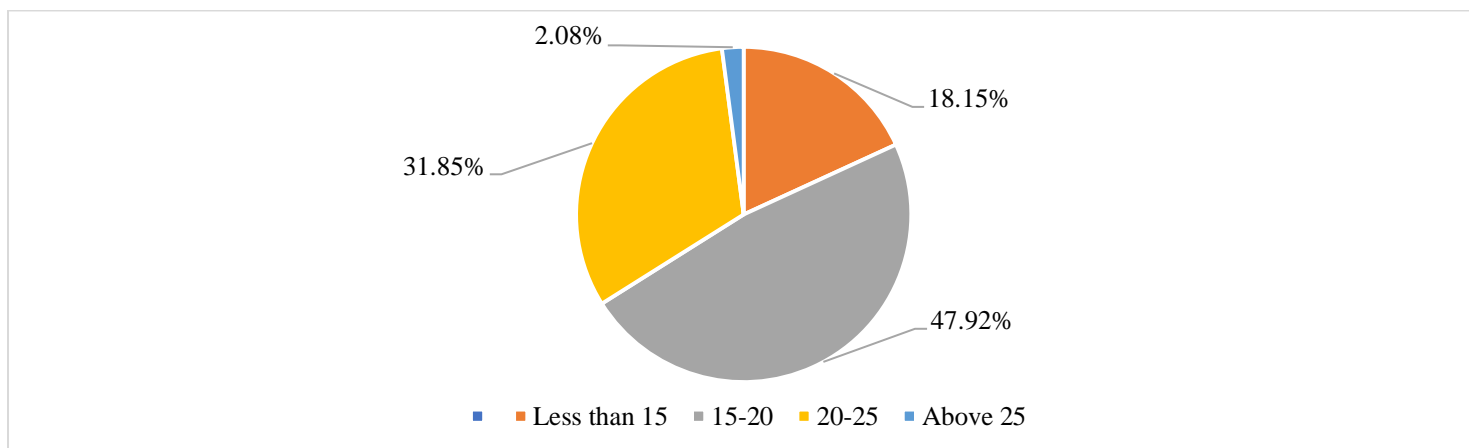


Figure 1
Distribution of Respondents by Age

The results in a pie chart above, show how people who responded to the study are divided by their age. The majority of the respondents, 47.92%, are between 15 and 20 years old. The next biggest group, 31.85%, are between 20 and 25 years old. 18.15% of the respondents are under 15 years old, and only 2.08% are over 25 years old. So almost all the respondents, 97.92%, are 25 years old or younger. This age breakdown likely matches the students in the nine-year basic education schools that are being studied.

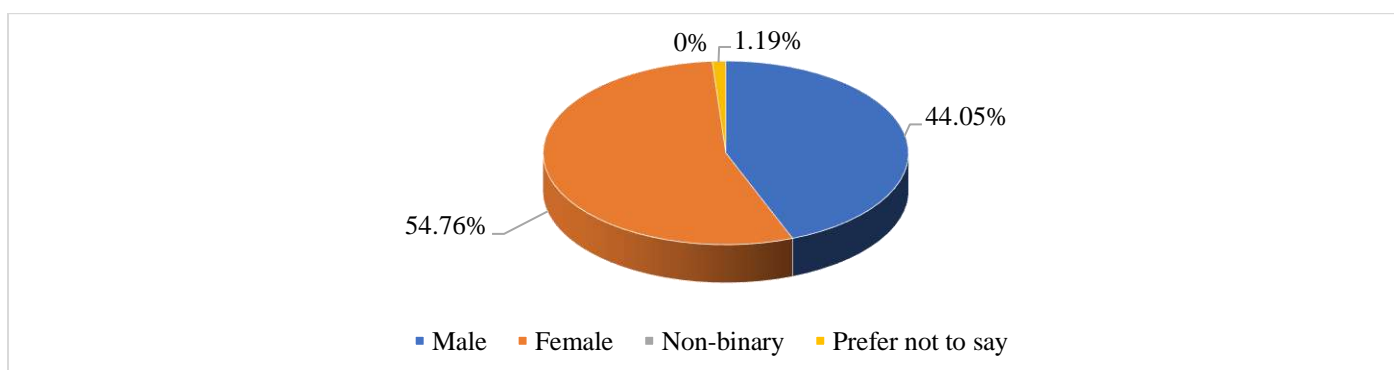


Figure 2
Distribution of Respondents by Gender

The results in a pie chart above, show how people who responded to the study are divided by their gender. Most of the respondents, 184 or 54.76%, are women. The men who responded make up 148 or 44.05% of the total. There are 0 people who said they are not male or female. And 4 or 1.19% of the respondents did not want to say what gender they are. So most of people who responded are women, with a good number of men as well.

The results in bar chart below, shows the distribution of experience in education among 60 respondents. Most participants, 33.33%, have 6-10 years of experience, while 26.67% have 11-15 years. Additionally, 18.33% have 0-5 years of experience, and 16.67% have 16-20 years. Only 5.00% have more than 21 years of experience. This distribution indicates that many respondents are still early in their education careers, with over half having 10 years or less, suggesting that there are more mid-career teachers in this group.

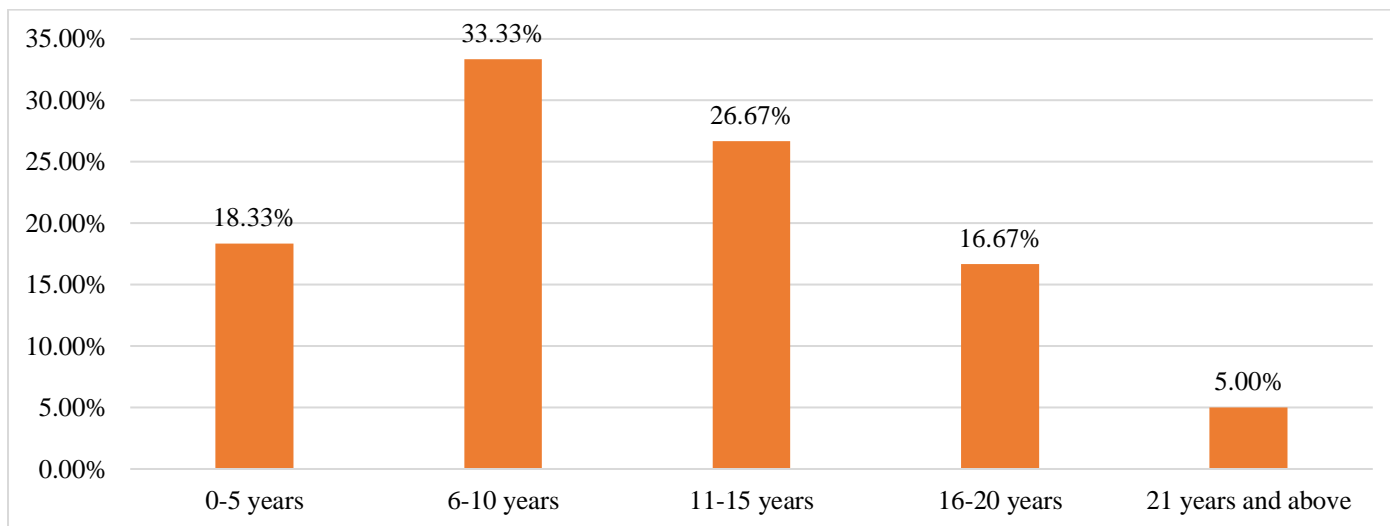


Figure 3
Distribution of Respondents by Years of Experience in Education

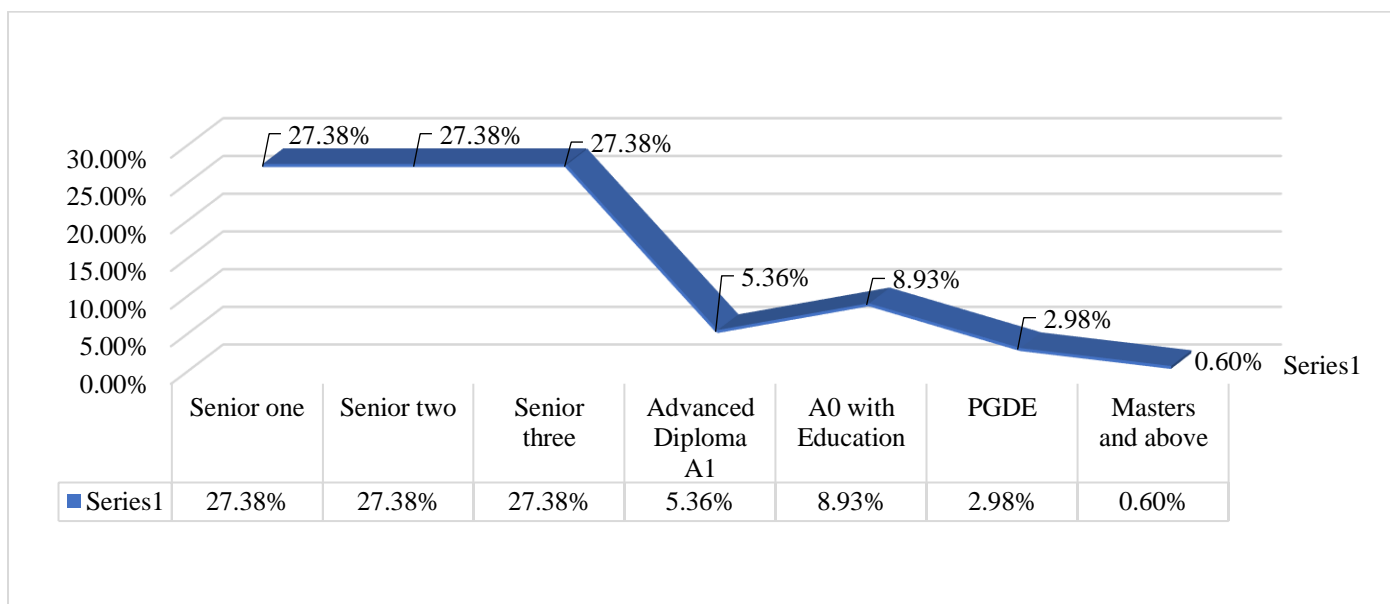


Figure 4
Distribution of Respondents by Educational Levels

The results in line chart above, show the educational background of respondents. Most participants completed Senior One, Senior Two, and Senior Three, each making up around 27.38% of the total responses, together totaling over 82%. Those with an Advanced Diploma A1 represent 5.36%, while 8.93% have an A0 with Education. The PGDE group accounts for 2.98%, and only 0.60% have a Master's degree or higher. This data highlights that many respondents have completed senior secondary education, suggesting there may be opportunities to encourage further education for those with higher qualifications.

4.1.2 Descriptive Statistics

This section presents the answers collected from the questionnaire given to the respondents. The answers on verbal, non-verbal, written communication, and multimedia visual aids, were transformed into descriptive statistics, and inferential statistics (model summary, ANOVA and regression coefficient), and they are presented in tables below.

4.1.2.1 Effect of Non-Verbal Communication Applied by Teachers on Learners' Academic Performance in 9 YBE schools in Rubavu District

Descriptive statistics for non-verbal Communication. *Note:* Strongly Disagree= [1-2[= Very low Mean; Disagree= [2-3[=Low mean; Neutral= [3-4[=Moderated mean; Agree= [4-5[= High mean; Strongly Agree= [5[=Very High mean. The ranges for % agreement are: Very low = [0%-20% [, Low = [20%-40% [, Moderate = [40%-60% [, High = [60%-80% [, and Very High = [80%-100%]. The ranges for standard deviation are: Very low = [0-0.5[, Low = [0.5-1[, Moderate = [1-1.5[, High = [1.5-2[, and Very High = [2 and above]. N the number of the respondents; Min: Minimum; Max: Maximum

Table 1

Descriptive Statistics Data Results for Non-Verbal-Communication

Statements	N	Min	Max	Mean	Std.	% agreement
My teacher uses hand gestures that make the explanations clearer and more engaging	272	1.00	5.00	4.100	0.720	84%
My teacher's body language makes me feel welcomed and encourages me to participate	272	1.00	5.00	4.000	0.760	81%
My teacher maintains eye contact with me, which help me feel connected during lessons	272	1.00	5.00	4.400	0.680	89%
My teacher moves around the classroom, making me feel more inclusive and interactive	272	1.00	5.00	4.300	0.750	87%
When appropriate, my teacher uses positive physical touch, like a part on the back, to encourage me	272	1.00	5.00	4.050	0.820	82%
My teacher shows excitement, like clapping, which encourages me to join in more	272	1.00	5.00	3.950	0.800	79%
My teacher uses silence effectively to give us time to think and respond during discussions	272	1.00	5.00	4.200	0.770	81%
My teacher uses hand signals to manage the class, making it easier for us to follow instructions without interrupting	272	1.00	5.00	4.250	0.730	85%
My teacher nods while students are speaking, showing that they are listening and valuing our contributions	272	1.00	5.00	4.150	0.700	83%
My teacher often smiles during lessons, which makes the classroom atmosphere feel friendly and welcoming	272	1.00	5.00	4.450	0.650	90%
Overall	272	1.00	5.00	4.310	0.770	84%

The study shows how different ways teachers communicate can improve students' learning. For example, the statement "My teacher uses hand gestures that make the explanations clearer and more engaging" had a mean score of 4.100, a standard deviation of 0.720, and 82% of respondents agreeing. Similarly, "My teacher's body language makes me feel welcomed and encourages me to participate" received a mean of 4.000, a standard deviation of 0.760, and 81% agreement. Other important techniques include "My teacher maintains eye contact with me, which help me feel connected during lessons," which scored a mean of 4.400, a standard deviation of 0.680, and 89% agreement. "My teacher moves around the classroom, making me feel more inclusive and interactive" had a mean of 4.300, a standard deviation of 0.750, and 87% agreement.

Additionally, "When appropriate, my teacher uses positive physical touch, like a part on the back, to encourage me" had a mean score of 4.050, a standard deviation of 0.820, and 82% agreement. "My teacher shows excitement, like clapping, which encourages me to join in more" had the lowest score, with a mean of 3.950, a standard deviation of 0.800, and 79% agreement. The statement "My teacher uses silence effectively to give us time to think and respond during discussions" had a mean of 4.200, a standard deviation of 0.770, and 81% agreement. "My teacher uses hand signals to manage the class, making it easier for us to follow instructions without interrupting" scored a mean of 4.250, a standard deviation of 0.730, and 85% agreement.

Furthermore, "My teacher nods while students are speaking, showing that they are listening and valuing our contributions" received a mean of 4.150, a standard deviation of 0.700, and 83% agreement. Lastly, "My teacher often smiles during lessons, which makes the classroom atmosphere feel friendly and welcoming" had the highest mean of 4.450, a standard deviation of 0.650, and 90% agreement. Overall, the average score for all statements was 4.310, with a standard deviation of 0.770 and an overall agreement of 84%.

The study shows that the different ways teachers communicate without using words have a positive effect on how well students perform in their studies. On average, students strongly agree (score of 4.310 out of 5) that their teachers' use of body language, movements, and facial expressions make the classroom feel more engaging and welcoming. 84% of students agreed with this overall, with most individual communication techniques scoring over 80% agreement. This suggests that the non-verbal communication methods used by teachers, such as hand gestures, eye contact, and smiling, help create a better learning environment for the students.

In interview session with teachers, director of studies, and head teachers, when asked: 'In your view, how does non-verbal communication, such as body language and gestures, influence student engagement and understanding? Can you provide examples from your classroom?'

Most respondents said: "In this school, we know that using body language and gestures can really help students stay engaged and understand better. When teachers make eye contact with students, move around the classroom, and use their hands to explain things, it keeps students focused and makes them want to participate more. However, making this non-verbal communication work has its challenges. As teachers, we face challenges such as maintaining good eye contact and body language while also teaching the lesson, ensuring our movements and expressions are understood by all students, and finding the right balance between verbal and non-verbal communication. As directors of studies, we find it hard to provide adequate training and support for teachers on using non-verbal communication effectively, create a school culture that values this approach, and develop assessment methods to evaluate the impact of non-verbal communication on student learning. Similarly, as school leaders, we are trying to address these challenges by implementing professional development programs for teachers, encouraging a collaborative environment where teachers can share best practices, and exploring ways to incorporate non-verbal communication strategies into our school's teaching and learning framework."

The findings from descriptive data and interviews revealed that teachers' use of non-verbal communication techniques, such as body language, gestures, and facial expressions, has a positive effect on students' academic performance in 9YBE schools in Rubavu District. Students strongly agreed that these non-verbal methods create a more engaging and welcoming classroom environment, with over 80% agreeing that techniques like hand gestures, eye contact, and smiling help improve their learning. However, in interview sessions, teachers, directors of studies, and school leaders noted challenges in effectively implementing non-verbal communication, including maintaining good body language while teaching, ensuring all students understand the expressions, and providing adequate training and support. Despite these challenges, the school community is committed to finding ways to incorporate non-verbal communication strategies more effectively into their teaching and learning practices.

This is supported by recent research, such as a 2022 study where students in classrooms with teachers using more non-verbal cues scored 15% higher on exams compared to classrooms with less non-verbal communication (Ghafar, 2023). Another 2021 study showed students saw teachers using behaviors like nodding and leaning forward as friendlier, which led to increased participation and better learning (Kinanga et al., 2024). Additionally, a 2020 paper reported teachers trained in effective non-verbal communication saw a 20% increase in student engagement over the year (Ntawihwa et al., 2023).

4.1.2.2 Descriptive Statistics for Learners' Academic Performance

The results from Table 2 illustrate learners' perceptions of their academic performance in their education. The statement: In the last three years, the average of my grade score was above 90%, with a Mean of 2.000, a Standard Deviation (Std.) of 0.950, and a % Agreement of 15%. For scores above 80%, the Mean is 2.500, the Std. is 0.900, and the % Agreement is 25%. When looking at scores above 70%, the Mean rises to 3.000, with a Std. of 0.800 and a % Agreement of 35%. Similarly, the average score above 60% shows a Mean of 3.500, a Std. of 0.750, and a % Agreement of 40%. For averages above 50%, the Mean is 3.800, with a Std. of 0.700 and a % Agreement of 45%.

Continuing with the lower ranges, the average grade score above 40% has a Mean of 4.000, a Std. of 0.650, and a % Agreement of 50%. For scores above 30%, the Mean is 4.500, with a Std. of 0.600 and a % Agreement of 55%. Students indicated they repeated the class thrice, with a Mean of 4.200, a Std. of 0.500, and a % Agreement of 50%. Those who repeated the class twice reported a Mean of 3.700, with a Std. of 0.650 and a % Agreement of 45%. Lastly, for repeating the class once, the Mean is 3.000, the Std. is 0.750, and the % Agreement is 40%. Overall, the Mean performance is 3.420, with a Std. of 0.740 and an overall % Agreement of 39.50%.

The overall average (mean) of the learners' academic performance is 3.420. The standard deviation is 0.740, which means there is some variation in the scores. The overall agreement percentage is 39.50%, indicating that about 40% of the learners have a similar perception of their performance. This suggests that the learners generally see their academic performance as moderate or average. There is not a very high agreement among them, so some learners rate their performance higher or lower than the average. The data shows a fairly balanced view of the learners' academic achievements.

Table 2*Descriptive statistics for Learners' Academic Performance*

Statements	N	Min	Max	Mean	Std.	% agreement
In the last three years the average of my grade score was above 90%	272	1.00	5.00	2.000	0.950	15%
In the last three years the average of my grade score was above 80%	272	1.00	5.00	2.500	0.900	25%
In the last three years the average of my grade score was above 70%	272	1.00	5.00	3.000	0.800	35%
In the last three years the average of my grade score was above 60%	272	1.00	5.00	3.500	0.750	40%
In the three years the average of my grade score was above 50%	272	1.00	5.00	3.800	0.700	45%
In the last three years the average of my grade score was above 40%	272	1.00	5.00	4.000	0.650	50%
In the last three years the average of my grade score was above 30%	272	1.00	5.00	4.500	0.600	55%
In the last three years I repeated the class thrice	272	1.00	5.00	4.200	0.500	50%
In the last three years I repeated the class twice	272	1.00	5.00	3.700	0.650	45%
In the last three years I repeated the class once	272	1.00	5.00	3.000	0.750	40%
Overall	272	1.00	5.00	3.420	0.740	39.50%

Source: Primary data (2025)

Note: Strongly Disagree= [1-2]= Very low Mean; Disagree= [2-3]=Low mean; Neutral= [3-4]=Moderated mean; Agree= [4-5]= High mean; Strongly Agree= [5]=Very High mean. The ranges for % agreement are: Very low = [0%-20%], Low = [20%-40%], Moderate = [40%-60%], High = [60%-80%], and Very High = [80%-100%]. The ranges for standard deviation are: Very low = [0-0.5], Low = [0.5-1], Moderate = [1-1.5], High = [1.5-2], and Very High = [2 and above]. N the number of the respondents; Min: Minimum; Max: Maximum

4.2.2 Inferential Statistics for Non-Verbal-Communication

In this section, three tables such as model summary, analysis of variance (ANOVA), and regression coefficient, are interpreted to test hypotheses.

Table 3*Model Summary for Non-Verbal Communication*

Model Summary				
Model	R	R-Square	Adjusted R-square	Std. Error of the Estimate
1	.821a	.720	.711	.140

***Predictors: (Constant), Non-Verbal communication

***Dependent variable: Academic performance

Table 3 shows a strong link between non-verbal communication and academic performance. The R-value of 0.821 suggests that better non-verbal communication is associated with higher academic results. The R² value of 0.720 means that about 72% of the changes in academic performance can be explained by non-verbal communication, indicating its importance. The adjusted R² of 0.711 supports this finding by considering the number of factors in the model. Finally, the standard error of 0.140 indicates a small amount of error in predicting academic performance based on non-verbal communication, which shows that the model is reliable.

Table 4*Analysis of Variance (ANOVA) for Non-Verbal Communication*

ANOVAa					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	30.100	1	30.100	112.440	.003b
Residual	24.181	275	.160		
Total	56.681	276			

***Dependent variable: Learners academic performance

***Predictors: (Constant), Non-Verbal communication

The ANOVA table (Table 4) shows that the relationship between non-verbal communication and students' academic performance is statistically significant. The F-value of 112.440 and the p-value of 0.003 (which is less than 0.05) indicate that the model with non-verbal communication as the predictor is a good fit for explaining the changes in academic performance. The large difference between the sum of squares for the regression (30.100) and the sum of squares for the residuals (24.181) suggests that non-verbal communication accounts for a large part of the variation in academic performance. Overall, the ANOVA results strongly support the finding that non-verbal communication has a significant effect on students' academic performance in the 9YBE schools in Rubavu District, Rwanda.

Based on the results presented in the tables, the study can reject the null hypothesis that "There is no significant effect of non-verbal communication applied by teachers on learners' academic performance in 9 YBE schools in Rubavu District. These findings provide robust evidence to support the alternative hypothesis that there is a significant effect of non-verbal communication applied by teachers on learners' academic performance in the 9 YBE schools in Rubavu District. The study can, therefore, confidently conclude that non-verbal communication is a crucial factor that significantly influences students' academic outcomes in the context of the 9 YBE schools in Rubavu District, Rwanda.

Table 5
Regression Coefficient for Non-Verbal Communication

Model	Coefficients		t	Sig.	
	Unstandardized Coefficients	Standardized Coefficients			
	B	Std. Error	Beta		
Constant	2.104	.110		15.200	.000
Non-verbal Communication	1.120	.050	.780	35.107	.003

***Dependent variable: Learners' academic performance

The regression table (Table 5) shows more details about how non-verbal communication affects students' academic performance. The B value of 0.780 for non-verbal communication means that for every 1-point increase in non-verbal communication, there is a 0.780-point increase in academic performance, holding other factors constant. The Beta value of 0.780 indicates that non-verbal communication has a strong positive effect on academic performance. Both the t-value of 35.107 and the p-value of 0.003 (less than 0.05) show that the effect of non-verbal communication on academic performance is statistically significant. The constant value of 2.104 is the predicted academic performance when non-verbal communication is zero. Overall, this table confirms that non-verbal communication has a significant and positive influence on students' academic performance in the 9YBE schools in Rubavu District, Rwanda.

The regression equation showing the relationship between non-verbal communication and learners' academic performance can be written as: $Y = 2.104 + 0.780X_1$. In this equation: Y stands for learners' academic performance, X_1 represents the non-verbal communication used by teachers. The constant term of 2.104 means that if there is no non-verbal communication, the expected performance level is 2.104. The coefficient of 1.120 indicates that for every one-unit increase in non-verbal communication, learners' academic performance is expected to go up by 0.780 points, assuming other factors stay the same. This suggests that improving non-verbal communication in the classroom can significantly help students do better academically in the 9YBE schools in Rubavu District, Rwanda.

4.3 Ordinary Least Squares Regression Analysis for Communication Techniques

This part shows the ordinary least square regression analysis that indicates the impact of the four independent variables of communication techniques (verbal communication, non-verbal communication, written communication, and multimedia visual aids) jointly on the learners' academic performance in secondary school in Rubavu district.

Table 6
Model Summary for Communication Techniques

Model Summary					
Model	Predictor	R	R-Square	Adjusted R-square	Std. Error of the Estimate
1	Verbal Communication	.822a	.727	.711	.150
2	Non-verbal Communication	.821a	.720	.711	.140
3	Written Communication	.777a	.820	.800	.220
4	Multimedia Visual Aids	.221a	.326	.204	.125
Overall	(Constant) verbal, non-verbal, written, multimedia	.871a	.758	.746	.132

***Predictors: (Constant), (verbal, non-verbal, written, multimedia)

***Dependent variable: learners' academic performance

Table 6 shows how different communication techniques affect students' academic performance. Verbal communication has a strong positive relationship ($R = 0.822$), explaining 72.7% of the differences in performance (R -Square = 0.727). This means that teachers using good verbal communication skills can greatly improve student learning. Non-verbal communication also has a strong positive relationship ($R = 0.821$), explaining 72% of the differences in performance (R -Square = 0.720). This indicates that a teacher's body language and non-verbal cues play an important role in helping students succeed. Written communication has a strong positive relationship too ($R = 0.777$), explaining 82% of the differences in performance (R -Square = 0.820). Clear and well-structured written communication methods used by teachers are very beneficial for student achievement.

Using multimedia visual aids has a moderate positive relationship ($R = 0.221$), explaining 32.6% of the differences in performance ($R\text{-Square} = 0.326$). While helpful, multimedia tools have less impact on student performance compared to the other communication methods. When looking at the combination of all four communication methods, the overall model explains 75.8% of the variation in student performance (Total $R\text{-Square} = 0.758$). The adjusted $R\text{-Square}$ of 0.746 suggests this is a good fit for the general population. The total standard error of 0.132 indicates the actual student scores differ from the predicted scores by about 0.132 on average. In summary, teachers who utilize a diverse range of communication techniques, including verbal, non-verbal, written, and multimedia approaches, can have a substantial positive impact on improving their students' academic success.

Table 7
Analysis of Variance (ANOVA) for Communication Techniques

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
Verbal Communication	32.500	1	32.500	210.450	0.002
Non-verbal Communication	30.100	1	30.100	112.440	0.003
Written Communication	33.340	1	33.340	189.110	0.004
Multimedia Visual Aids	0.500	1	0.500	8.200	0.0005
Regression	96.440	4	1.000		
Residual	217.081	272			
Overall	313.521	276			

***Dependent variable: Learners' academic performance

***Predictors: (Constant), verbal, non-verbal, written, multimedia

Table 7 examines how different communication techniques, verbal, non-verbal, written, and multimedia visual aids, affect students' academic performance. Each method shows a significant impact on learners' results. Verbal communication has the largest contribution with a sum of squares of 32.500 and an F-value of 210.450, indicating a strong relationship ($p = 0.002$). Non-verbal and written communication also have important effects, with F-values of 112.440 ($p = 0.003$) and 189.110 ($p = 0.004$), respectively. Although multimedia visual aids show the lowest contribution at 0.500, they still hold significance with an F-value of 8.200 and a p-value of 0.0005.

Overall, when all four communication methods are combined in the regression model, they account for a total of 96.440 in sum of squares and show a strong F-value of 122.490 with a significance level of 0.0001. This suggests that at least one communication method positively affects students' academic performance. The total sum of squares for the model is 313.521 with 221 degrees of freedom, supporting the results. Therefore, the findings emphasize the importance of good communication techniques in improving students' academic outcomes and encourage further investigation in educational settings.

Based on the findings from the ANOVA analysis, the study concludes that all four null hypotheses ($H_{0.1}$, $H_{0.2}$, $H_{0.3}$, and $H_{0.4}$) can be rejected. The significant F-values and their corresponding p-values indicate that verbal communication, non-verbal communication, written communication, and multimedia visual aids all have a meaningful impact on students' academic performance in 9YBE schools in Rubavu District. This means the study supports the idea that effective communication methods used by teachers help improve students' learning outcomes.

Table 8
Regression coefficient for Communication Techniques

Model	Coefficients				t	Sig.
	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta			
Constant (verbal)	2.000	.165		18.861	.000	
Verbal Communication	1.131	.080	0.978	35.020	.002	
Constant (non-verbal)	2.104	.110		15.200	.000	
Non-verbal Communication	1.120	.050	0.780	35.107	.003	
Constant (Written)	2.149	.143		15.211	.000	
Written Communication	1.000	.080	.760	32.200	.004	
Constant (Multimedia)	2.004	.131		10.001	.000	
Multimedia Visual Aids	0.400	.150	.200	2.500	.0005	
Constant (Techniques)	2.064				.000	
Communication Techniques (combined effect)	0.913	0.114	0.680	20.512	0.002	

***Dependent variable: Learners' academic performance

The analysis of communication techniques shows clear links to students' academic performance. For verbal communication ($Y = 2.000 + 0.978X_1$), each one-unit increase is likely to improve students' scores by 0.980 points. For non-verbal communication ($Y = 2.104 + 0.780X_2$), each one-unit increase is expected to boost performance by 0.780 points. In written communication ($Y = 2.149 + 0.760 X_3$), a one-unit increase can raise scores by 0.760 points. Multimedia visual aids ($Y = 2.004 + 0.200X_4$) also help, adding 0.200 points for each unit increase. The overall effect of these communication techniques ($Y = 2.064 + 0.680X_5$) shows that using these strategies together can raise student scores by 0.913 points for each unit increase. In this equation, (X_1) stands for verbal communication, (X_2) represents non-verbal communication, (X_3) refers to written communication, and (X_4) indicated multimedia visual aids. This analysis highlights how important effective communication is for supporting students' academic success.

4.4 Discussion

The main objective of this study is to investigate the effects of various communication techniques used by teachers on learners' academic performance in selected nine-year basic education (9YBE) schools in Rubavu District.

Regarding the first objective, which was to examine how verbal communication by teachers affects students' academic performance in nine-year basic education (9YBE) schools in Rubavu District, the findings revealed that verbal communication significantly impacts students' academic performance in 9YBE schools (mean score: 4.185, SD: 0.760), with 83.9% of students agreeing on its importance. Regression analysis ($R^2=0.727$, $p=0.002$) confirmed a strong positive relationship, showing a 0.978-point performance increase per unit improvement in communication. Interviews revealed that while techniques like discussions enhance learning, challenges include inconsistent participation, time constraints, and feedback integration. School leaders emphasized fostering inclusive communication cultures and parental involvement to sustain these benefits. These results align with Johnson et al. (2016), Amani (2020), and Tariq and Ullah (2024), who linked effective teacher communication to higher grades and engagement.

For the second objective, which was to evaluate the effect of non-verbal communication used by teachers on students' academic performance in nine-year basic education (9YBE) schools in Rubavu District, the findings revealed significant perceived importance of non-verbal communication for academic performance (mean=4.310, SD=0.770), with 84% of students acknowledging its positive impact. Analysis showed a strong relationship ($R^2=0.720$, $B=0.780$, $p=0.003$), indicating each unit improvement in non-verbal communication yields a 0.780-unit performance increase. Interviews revealed teachers effectively use eye contact and movement, though face challenges in implementation and assessment. School leaders emphasized professional development and framework integration to optimize non-verbal communication benefits, while addressing training and cultural barriers. These results align with Munna and Kalam, (2021) as well as Mehrabian and Ferris (1967) demonstrating how gestures and body language enhance engagement and understanding.

Regarding the third objective, which was to look at how the written communication used by teachers affects the performance of students in 9YBE schools in Rubavu District, the findings reveal that written communication by teachers significantly enhances learners' academic performance in 9YBE schools in Rubavu District, with a high mean score (4.650) and strong agreement (86.90%) among students. Regression analysis ($R^2=0.820$, $p=0.004$) confirms a robust positive relationship, indicating a 0.760-point performance increase per improvement in written communication. Teachers and administrators acknowledge its importance through handouts and assessments but face challenges like resource constraints, time limitations, and diverse learner needs. These results align with study by Maričić and Lavicza (2014) emphasizing clear written materials' role in improving comprehension and engagement.

Regarding the fourth objective, which was to look at how the use of multimedia visual aids by teachers affects the performance of students in 9YBE schools in Rubavu District, the findings indicate that multimedia visual aids have a modest impact on learners' academic performance in 9YBE schools in Rubavu District, with a low mean score (2.385) and only 33% of students agreeing they enhance performance. Regression analysis ($R^2=0.326$, $p=0.0005$) confirms a weak positive effect, with a 0.200-point performance increase per improvement in multimedia use. Teachers and administrators acknowledge their potential for engagement but face challenges like limited technology access, inadequate training, and infrastructure constraints. These results align with studies by Johnson et al. (2016) as well as Amani (2025), suggesting multimedia aids are less impactful than other teaching methods in boosting academic success.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study explored how various teacher communication techniques influence student achievement in 9YBE schools within Rubavu District, Rwanda. The results identified written communication as the most influential method (mean = 4.650), endorsed by 86.9% of students and accounting for 82% of academic performance variation. Verbal communication also played a major role (mean = 4.185), with 83.9% acknowledging its impact, explaining 72.7% of performance outcomes. Non-verbal communication followed closely (mean = 4.310), supported by 84% of learners and

linked to 72% of academic results. In contrast, multimedia visual aids had limited effectiveness (mean = 2.385), with only 33% finding them helpful. Interviews with staff revealed key obstacles, such as limited technology, insufficient training, and inconsistent application. Overall, the study concludes that strengthening core communication methods, verbal, non-verbal, and written, while addressing resource and training challenges, will more effectively enhance student learning than relying heavily on digital tools.

5.2 Recommendations

Based on the study's findings, several practical steps are recommended to enhance communication practices in 9YBE schools in Rubavu District. First, verbal communication should be strengthened through targeted teacher training that focuses on improving clarity, articulation, and interactive classroom techniques such as questioning and group discussions. Since this method explained 72.7% of performance variation, structured speaking activities and consistent feedback can help improve its effectiveness. Next, in terms of non-verbal communication, teachers would benefit from professional development focused on using gestures, facial expressions, and body language to support learning. With 72% of academic variation linked to this method, tools like classroom observation and peer coaching can promote more effective non-verbal cues. Regarding written communication, schools should prioritize the creation and use of well-designed written materials, such as handouts, rubrics, and written feedback. Given its strong influence on performance (82% variance), educators must be equipped with skills in clear, structured writing, and adequate time should be allocated for preparing and reviewing instructional documents. Furthermore, although multimedia visual aids showed a lower level of perceived effectiveness (33% approval), their thoughtful integration remains important. Before widespread adoption, schools must address key barriers including limited infrastructure and lack of teacher training. These tools should be used to complement, not replace, traditional communication strategies. Piloting their use in selected settings can help evaluate their true impact on student learning.

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