

The influence of educational planning on rural education outcomes in public secondary schools in Gisagara District, Rwanda

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ABSTRACT

This study was conducted in public secondary schools of Gisagara District in Rwanda to assess the influence of education planning on rural education outcomes. It was guided by four objectives: to establish the influence of needs assessment on rural education outcomes, to assess the influence of goal setting on rural education outcomes, to determine the influence of policy formulation on rural education outcomes, and to analyze the influence of data-based decision making on rural education outcomes in public secondary schools in Gisagara District. It is grounded on the Strategic Planning Theory. A descriptive survey design with a mixed-methods approach was adopted. The target population was 314 individuals. The purposive and simple random sampling was used to make sample size of 2014 respondents. Data collection instruments used are questionnaires, document review and interviews. Quantitative data were analyzed using SPSS to determine descriptive and inferential statistics. Qualitative data were analyzed thematically. The study found that data-based decision-making had the highest influence ($R^2 = 0.272$, $\beta = 0.522$) on rural education outcomes, followed by policy formulation ($R^2 = 0.211$, $\beta = 0.460$), goal setting ($R^2 = 0.187$, $\beta = 0.432$), and needs assessment ($R^2 = 0.063$, $\beta = 0.250$), indicating that participatory, data-informed, and well-monitored school planning and management practices significantly enhance educational quality and student performance in rural areas. The study recommends strengthening evidence-based and participatory educational planning, particularly goal setting, data-driven decision-making, and teacher capacity-building, to improve rural student outcomes, and suggests further research on the long-term effects of these practices, policy implementation, and professional development on school effectiveness and learning sustainability.

Keywords: Academic Performance, Educational Planning, Gisagara District, Rural Schools, Public Secondary Schools, Rwanda

I. INTRODUCTION

The ultimate national commitment of Government of Rwanda is to transform the country's economy into a knowledge-based economy. This is where the economic growth of the country is driven by skills and innovation through empowering human capital development. To achieve this vision, the government of Rwanda emphasizes the role of education in producing a skilled and competent workforce capable of competing on the global market. In this regards, the ministry of education holds the task to provide the high quality of education to all learners. The researches show that the quality of education is not only determined by access to schooling but also by how well educational resources are planned, distributed and utilized. For instance, the study of Alawamleh (2013) found the statistically significant correlation between planning effectiveness and quality of educational programs. The strategic planning and strong management systems are essential for improving school effectiveness (Bruns, 2011). The study of Fernandez (2011) found a strong and consistent association between the quality of school planning and overall student performance in math and reading. Similarly, Chimuka (2016) indicated a positive and significant influence of the school strategic plan on pupils' academic performance with the greatest influence from teacher preparedness strategy. These studies stated above, consistently indicate that effective educational planning plays a crucial role in enhancing the quality of education by ensuring efficient resource use, improving system coordination, and supporting sustained academic performance.

In response to the relevance of educational planning on the quality education, the government of Rwanda through the Ministry of education has continuously developed and implemented the successive Education Sector Strategic Plans (ESSP) such as 2008–2012, 2013–2018, 2018–2024, and the recent 2024–2029 (MINEDUC, 2025) to guide the development of the education sector. These plans serve as comprehensive frameworks that align national education priorities with Rwanda's long-term development vision, focusing on improving access, equity, quality, and relevance of education. Particularly, the latest ESSP (2024–2029) aims to achieve inclusive and high quality education

for all learners. However, the performance of rural school students remains relatively poor compared to their urban counterparts.

The various researches conducted in Rwanda consistently show the gap between performance of students from urban and rural schools and the reasons behind. For example, Nzayisenga (2025) found that the lack of instructional supervision contributes to poor performance of students from rural schools in Rubavu district. The study conducted in Burera District, by Celestin (2024) found that the high dropout rates and poor students' academic performance were more prevalent in rural areas due socio-economic challenges. Ntahomvukiye (2024) in Rutsiro district also revealed that the poor academic performance of rural students is due to the lack of adequate school facilities and instructional materials in science subjects. These studies provide evidences for various issues affecting rural students to access the quality education which can lift them to reach their full potential. Although there is no available evidence on educational planning as factor of academic performance in rural context, Cyprien (2013) highlighted that the planned actions in schools are not realize due to the capitation grants not provided on time. Likewise, Odette (2022) found that although schools had formal strategic plans, planning practices were not effectively implemented due to lack of involvement of stakeholders. This suggests that many schools stuck in achieving their planned goals, as well as weaknesses in how planning is executed at the school level. It is in this regards this study is needed to understand how educational planning relates to educational outcomes in rural areas.

1.1 Statement of the Problem

Rwanda aspires to be high income country with knowledge based economy through provision of quality education which empowers the citizen with relevant skills and knowledge needed to compete on global market as articulated in education sector strategic plan (MINEDUC, 2024). However, researches like Habyarimana (2022) reveals that the relevance of education is poor to respond to the societal needs and labour market demands, like provision of competent human resources on either national or international market. This problem is most complicated specifically in rural areas as evidenced by high dropout rates, low transition rates and high pupil-teacher ratio (Manirahari, 2025). These factors result to disparities in educational outcomes among rural and urban students. Evidence from NESAs (2023) shows that the pass rate in rural schools was relatively lower than the pass rate in urban schools in 2021 and 2022. On average, the pass in 2021 was 75.12% in rural schools and 86.90% in urban while in 2022, it was 82.08% in rural schools and 89.48% in urban. Particularly, NESAs (2024) School Performance Rankings of 2023/2024 National Examinations Results shows that most schools in Gisagara District which is dominantly rural schools, record pass rates between 40% and 60%, which is below the national average of approximately 64%.

The lack of educational planning and its effective implementation may contribute to this issue. For instance, the study of Habyarimana (2022) established the inadequate equity in distributing available scarce resources like professionally trained and qualified teachers, classrooms, desks, textbooks, computers, toilets in rural schools. This suggests the weakness of schools to plan and achieve their planned goals. The emergency of this problem demands the quick and serious interventions to address it. Without urgent interventions in education planning practices on school level, the rural students risk continued underperformance and stuck to meet their future prospects.

As such, this study aimed to examine the influence of educational planning on rural education outcomes in public secondary schools in Gisagara District, Rwanda.

1.2 Research Objectives

- i. To establish the influence of needs assessment on rural education outcomes in public secondary schools in Gisagara District, Rwanda
- ii. To assess the influence of goal setting on rural education outcomes in public secondary schools in Gisagara District
- iii. To determine the influence of policy formulation on rural education outcomes in public secondary schools in Gisagara District
- iv. To analyse the influence of data-based decision making on rural education outcomes in public secondary schools in Gisagara District

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Strategic Planning Theory

The Theory of Strategic Planning by Tambovtsev (2020), explains how planning processes are shaped by institutional environments. It states that strategic planning is different from strategy itself. Strategy may be developed informally or intuitively, while strategic planning involves creating structured plans based on that strategy. It highlights that planning is not just a technical activity but a social process influenced by institutions, such as rules,

norms, and organizational structures. These institutions shape how individuals behave, make decisions, and implement plans.

The theory argues that strategy and planning are not identical; rather, strategic planning is defined as the process of developing plans based on a pre-existing strategy, which may sometimes be implicit or not formally articulated. This distinction is important because it highlights that effective planning depends on the clarity and relevance of the underlying strategy. Without a well-defined strategy, planning efforts are unlikely to produce meaningful outcomes, regardless of how structured or detailed the plans may appear. According to this theory, if you review the school records, it is often found that schools are well documented with school improvement plans; however, these plans are not effectively achieved in practice (Odette, 2022). The Institutional Theory of Strategic Planning explains this gap by arguing that the mere existence of formal plans does not guarantee successful implementation. In many cases, such plans remain symbolic documents developed to meet administrative or policy requirements rather than to guide real action.

A central proposition of the theory is that the success of strategic planning is heavily dependent on the institutional environment within and outside the organization. Internal factors such as leadership, organizational culture, and incentive systems interact with external influences such as government policies and regulatory frameworks to shape planning processes. In contexts where institutional environments are weak or poorly structured, planning is often ineffective, leading to suboptimal outcomes.

The application of this theory to the education sector, particularly in rural contexts, provides valuable insights into the challenges of educational planning. Public secondary schools operate within institutional environments that may be characterized by limited resources, weak leadership, and inadequate planning capacity. In such settings, planning processes may not effectively translate into improved educational outcomes. Instead, plans may exist primarily as formal requirements, with limited influence on teaching, learning, and student performance.

2.2 Empirical Review

2.2.1 Education Planning and educational outcomes

Educational outcomes are commonly measured through indicators such as student academic achievement, completion rates, attendance, and school efficiency. Across different contexts, studies have generally found a positive relationship between education planning and educational outcomes, although the strength of this relationship depends largely on implementation quality. The study of Fernandez (2011) in the United States of America (USA) found a strong and consistent association between the quality of school planning and overall student performance. In the same context the study of Mau (1995) shows that the educational aspirations were significantly related to their current academic achievements. The study of Ní Bhroin (2021) in Ireland reported that the individual education plan is an established feature of practice, functioning as a pedagogical tool and potential for enhancement. The study of Shanko and Kabtyimer (2024) in Ethiopia, revealed that the implementation of School Improvement plans for teaching-learning, school leadership and management, parent-community school relations, and healthy school environment enhance the overall quality of education and ultimately improve students' academic outcomes. The study of Juma (2024) in Kenya indicated a strong positive relationship between strategy implementation and academic performance in public secondary schools. The study further found that the schools that had adopted strategic planning performed significantly better than schools that had not. In Rwanda, the study of Ntahomvukiye (2024) revealed that educational planning affects learners' academic performance. Likewise, Odette (2022) revealed that strategic planning practices like stakeholders' involvement and communication have positive and significant relationship with the academic performance.

2.2.2 Needs Assessment and Education Outcomes

Empirical studies show that schools and education systems that regularly conduct needs assessments tend to achieve better educational outcomes. The study of Hauer (2011) revealed that the curriculum needs assessments are linked to the improvement of learning outcome. Likewise, Owusu-Cole (2025) found that institutional policy clarity significantly predicted the perceived relevance and utility of professional development needs assessments, suggesting that structural coherence enhances the identification of educators' developmental priorities. The study of Garira (2020) revealed the needs assessment as key factors for realisation and improvement of quality education. A study by (Hunt, 2002) found that conducting a comprehensive needs assessment in schools enabled the identification of factors related to school dropout and violence. Similarly, the study of Lowenthal (2012) demonstrated that transition assessments using gap analysis help identify discrepancies between students' current abilities and expected outcomes.

2.2.3 Goal Setting on Education Outcomes

Goal setting is a central component of educational planning there to articulate clear, measurable and time-bound objectives that intends school performance and accountability mechanisms. The study of Moeller et al.

(2012) reveals a statistically significant relationship between the goal-setting process and students achievement. Likewise, Urgo and Arguello (2024) found that goal-setting improves learning outcomes. On both sides, Expósito-Álvarez et al. (2024) revealed goal setting could be an effective strategy to reduce dropout. Stevenson (2016) showed that goal setting was closely associated with immediate decreases in latency to task engagement.

2.2.4 Policy Formulation on Education Outcomes

Empirical studies consistently demonstrate that effective policy formulation plays a critical role in improving education outcomes. The research by (Sari, 2025) found that effective policy formulation and implementation in public programs significantly improve service delivery and organizational performance. The study of Wemesa (2026) also found that well-formulated and effectively implemented government education policies significantly enhance the effectiveness of school strategic planning, which in turn improves academic performance outcomes. Furthermore, the study found that when education policies are formulated using rigorous empirical evidence and experimental research, they are more likely to produce effective and replicable instructional programs that enhance student achievement. Contrary, the study of Bolhaar (2019) found that although several policy-inspired interventions were implemented to reduce school dropout, they did not significantly decrease dropout rates at either the school or student level.

2.2.5 Data-Based Decision Making on Education Outcomes

Data-Based Decision Making is the main factor in educational planning process. The study of Van Geel et al. (2016) found that the use of data in education significantly improved the performances of students in low socioeconomic status. Data-based decision making significantly contributes to school improvement when educators systematically collect, analyze, and use student performance data to guide instruction and school planning (Schildkamp, 2019). The study of Visscher (2021) found that the data based decision making interventions had significant positive effects on student performance.

III. METHODOLOGY

3.1 Research Design

The study used a descriptive survey design within a mixed-methods approach. This design was chosen in order to accurately collect information current situation of educational planning and its effect on rural education outcomes. It was of mixed-methods approach because it involved the collection of both the quantitative and qualitative data. For quantitative data, the researcher was able to gather a wide array of numerical data regarding the planning strategies employed in public secondary schools and their relationship to educational outcomes. For qualitative data, the researcher was able to collect the experiences of study participants related to educational planning that helped contextualize the quantitative findings. The triangulation of both data collection methods strengthened the study by providing an avenue to confirm data from multiple sources and approaches. According to Creswell and Tashakkori (2007), this helps for providing a more comprehensive and trustworthy picture of the effect of educational planning on rural education outcomes.

3.2 Study Area

The research was conducted in Gisagara District. This is one of the districts located in the Southern Province of Rwanda and it is dominantly rural areas. Gisagara District has several public secondary schools that serve students from rural communities. Like other rural districts, it faces challenges such as inadequate educational resources, limited access to qualified teachers, high dropout rate, and insufficient school facilities.

The choice of Gisagara District as the study area was appropriate because it reflects typical rural education conditions in Rwanda, where disparities in educational outcomes are evident. The recent national examination reports have shown that many schools in the district perform below the national average. So it was the basis setting for examining how educational planning influences rural education outcomes.

3.3 Study Population and Sampling Methods

A target population in this study included 314 people from the public secondary in Gisagara District. This number included 29 head teachers, 29 deputy head teachers in charge of studies (DOS) and 256 teachers. All of these individuals were chosen to be part of the target population because they contribute to key parts of the educational planning process. They particularly intervene in needs assessment, goal setting, policy development and implementation, data-driven decision-making that takes place within their respective schools. Slovin's formula was used to determine the sample size of teachers. The formula was as follows:

$$n = \frac{N}{1 + Ne^2}$$

Where:

n = Required sample size

N = Total population size

e = Margin of error (set at 0.05 for a 95% confidence level)

Since the study targeted 256 teachers, the sample size was calculated as follows:

$$n = \frac{256}{1 + 256(0.05)^2}$$

$$n = \frac{256}{1 + 256(0.0025)}$$

$$n = \frac{256}{1.64} = 156$$

Thus, the teachers chosen were 156 respondents. The study used a simple random sampling technique to select teachers. The purposive sampling was used to select head teachers and deputy head teachers in charge of studies. The table 1 outlines sample sizes and sampling technique used for each population category.

Table 1

Sample Distribution and Sampling Technique

| Population Category | Target Population | Sample Size | Sampling technique |
|---------------------|-------------------|-------------|--------------------|
| Head teachers | 29 | 29 | Purposive |
| DOS | 29 | 29 | Purposive |
| Teachers | 256 | 156 | Simple random |
| Total | 314 | 214 | |

3.3 Instruments used for Data Collection

The structured questionnaires were used to collect quantitative data from Teachers. The questionnaires were given in person. The aim of using questionnaires was to provide a way to quantify teachers' experiences to allow for statistical analyses. The semi-structured interview guide was developed to collect qualitative data from head teachers and deputy head teachers in charge of studies. The guide contained open-ended questions related to the research objectives. A document analysis used to collect secondary data from school records and official documents. These include school improvement plans, annual reports, student attendance registers, examination performance records, and minutes from staff meetings. This helped to get verifiable evidence of educational planning processes and their impact over time. The use of different tools helped to triangulate findings and validity of the study.

3.4 Data Collection Procedures

At the beginning of data collection, Questionnaires were administered to teachers to collect quantitative data. After collecting questionnaires, Semi-structured interviews were conducted with head teacher and deputy head teacher in charge of studies to collect the qualitative data.

3.5 Data Analysis

For the quantitative analysis, SPSS was used for descriptive statistics. These statistical measures provided a clear overview of the data distribution and central tendencies in public secondary schools in Gisagara District. The results of the descriptive statistics were presented using tables, charts, and bar graphs to enhance clarity and ease of interpretation. Inferential statistics were applied through regression analysis to examine the relationships between variables and to make predictions based on the data.

For qualitative data, a thematic analysis was employed to identify patterns and themes related to education planning and its influence on rural education outcomes. Data were coded into categories that reflected key aspects of education planning and rural education outcomes.

3.6 Ethical Consideration

The study adhered to ethical standards outlined by Mount Kigali University and in accordance with Rwanda's Data Protection Law (No. 058/2021 of 13/10/2021).

To gain access to the selected public secondary schools in Gisagara District, the researcher first obtained ethical clearance and an official introduction letter from Mount Kigali University. Participation in the study was entirely voluntary, and no one was compelled to take part. Data collected were used only for research purposes and

were not disclosed to any unauthorized parties. To uphold academic honesty, the research proposal was screened for plagiarism using TURNITIN software.

IV. FINDINGS & DISCUSSION

4.1 Educational Outcomes

The data on educational outcomes were obtained through document review of school examination records. Students' academic performance was summarized using the mean score and standard deviation for each school. The findings from 29 Schools in Gisagara District are presented in Table 2.

Table 2

Educational Outcomes

| No. | School Name | Exam Mean Score (%) | Std. Deviation |
|----------------|-----------------------|---------------------|----------------|
| 1 | ES Rwamiko | 62.91 | 11.43 |
| 2 | GS Muduha | 64.43 | 10.86 |
| 3 | GS Nyagahuru II/TSS | 66.75 | 10.24 |
| 4 | GS Kinteko | 66.98 | 10.17 |
| 5 | ES Mamba | 67.73 | 9.85 |
| 6 | GS Kansi B | 67.88 | 9.94 |
| 7 | ES Higiro | 68.47 | 9.51 |
| 8 | GS Zivu | 68.54 | 9.33 |
| 9 | GS Gikonko Catholique | 68.92 | 9.88 |
| 10 | GS Saga | 69.41 | 9.61 |
| 11 | GS Mbogo | 69.74 | 9.17 |
| 12 | GS Gikore | 69.82 | 9.12 |
| 13 | GS Rubona | 70.15 | 8.89 |
| 14 | ES Gakoma | 70.31 | 8.76 |
| 15 | ES Gikonko | 70.53 | 9.42 |
| 16 | GS Nyabisonga | 70.84 | 8.67 |
| 17 | GS Kibilizi | 71.56 | 8.44 |
| 18 | GS Gishubi | 71.63 | 8.42 |
| 19 | GS Gisagara A | 71.84 | 8.73 |
| 20 | GS Ndora | 72.18 | 8.21 |
| 21 | GS Rwatano | 72.47 | 8.08 |
| 22 | GS Cyumba | 72.65 | 8.58 |
| 23 | GS Nyabitare | 72.84 | 8.95 |
| 24 | GS Cyamukuza | 73.26 | 8.11 |
| 25 | GS Mugombwa | 73.82 | 7.94 |
| 26 | GS Mushongi | 74.12 | 7.85 |
| 27 | GS Gitwa | 75.31 | 8.21 |
| 28 | GS St François D | 77.94 | 7.1 |
| 29 | GS St Philippe Neri | 78.62 | 6.84 |
| Overall | | 70.91 | 9.01 |

The table 2 presents the academic performance of the 29 sampled public secondary schools in Gisagara District. The findings indicate noticeable differences in students' academic achievement across the sampled schools. The overall district mean score was 70.91%, with a standard deviation of 9.01, suggesting that, on average, students achieved satisfactory academic performance, although moderate variation existed among schools.

The highest-performing school was GS St Philippe Neri, which attained a mean score of 78.62% with the lowest standard deviation (6.84). GS St François D recorded a high mean of 77.94% (SD = 7.10), while GS Gitwa achieved a mean of 75.31% (SD = 8.21). These schools demonstrated comparatively strong educational outcomes.

Several schools recorded mean scores close to the average, including GS Gisagara A (71.84%), GS Rwatano (72.47%), GS Cyumba (72.65%), GS Nyabitare (72.84%), GS Cyamukuza (73.26%), and GS Mugombwa (73.82%). The relatively low standard deviations observed in these schools (ranging from 7.94 to 8.95) indicate fairly consistent student performance.

A number of schools recorded comparatively lower academic performance. ES Rwamiko registered the lowest mean score of 62.91% with the highest standard deviation (11.43), indicating both low academic achievement and

considerable variation in students' performance. Other schools with relatively low mean scores included GS Muduha (64.43%, SD = 10.86), GS Nyagahuru II/TSS (66.75%, SD = 10.24), GS Kinteko (66.98%, SD = 10.17), and ES Mamba (67.73%, SD = 9.85). The comparatively higher standard deviations in these schools suggest greater disparities in students' academic achievement. These differences provide a basis for examining whether educational planning practices particularly needs assessment, goal setting, policy formulation, and data-based decision-making contribute significantly to variations in educational outcomes among public secondary schools in Gisagara District.

4.2 Influence of Needs Assessment on Education Outcomes

The first question guided this study was about the extent to what needs assessment influence rural education outcomes in public secondary schools in Gisagara District, Rwanda. This was answered through using a five-point Likert scale, ranging from strongly agrees to strongly disagree, to quantify the perceptions of respondents.

Table 3

Teachers Responses on the influence of Resource Allocation on Transition Rates

| Statements | SD (N, %) | D (N, %) | N (N, %) | A (N, %) | SA (N, %) | Mean | Std. Dev. |
|--|--------------|-------------|-------------|-------------|--------------|--------|--------------|
| Needs assessments is conducted | 0 (0.0) | 2 (1.5) | 0 (0.0) | 105 (76.6) | 30 (21.9) | 4.1898 | 0.49308 |
| Teachers and parents involved when identifying the needs | 0 (0.0) | 1 (0.7) | 0 (0.0) | 136 (99.3) | 0 (0.0) | 3.9854 | 0.17087 |
| The needs of disadvantaged learners are considered in school planning. | 1 (0.7) | 0 (0.0) | 2 (1.5) | 95 (69.3) | 39 (28.5) | 4.2482 | 0.55281 |
| Planning activities are based on student and teacher needs. | 0 (0.0) | 0 (0.0) | 1 (0.7) | 71 (51.8) | 65 (47.4) | 4.4672 | 0.51523 |
| Stakeholders are engaged in school needs assessments. | 0 (0.0) | 0 (0.0) | 0 (0.0) | 68 (49.6) | 69 (50.4) | 4.5036 | 0.50182 |
| Needs assessments is used to develop realistic action plans for improving learning outcomes. | 3 (2.2) | 0 (0.0) | 0 (0.0) | 65 (47.4) | 69 (50.4) | 4.4599 | 0.61852 |

The results revealed that schools in Gisagara District conducted needs assessments to identify challenges affecting student learning, with 76.6% of respondents agreeing and 21.9% strongly agreeing (mean = 4.1898, SD = 0.49308), indicating a strong consensus that needs assessments were routinely implemented. It was further observed that teachers, parents, and community members were involved in identifying student needs, with 99.3% agreeing (mean = 3.9854, SD = 0.17087), reflecting almost unanimous participation. Regarding disadvantaged learners, 69.3% agreed and 28.5% strongly agreed (mean = 4.2482, SD = 0.55281) that their needs were considered in planning, showing that equity considerations were prioritized. Planning activities were guided by a clear understanding of student, teacher, and infrastructure needs, with 51.8% agreeing and 47.4% strongly agreeing (mean = 4.4672, SD = 0.51523), indicating that plans were informed by comprehensive situational analysis. Additionally, district stakeholders actively contributed during school needs assessments, with 49.6% agreeing and 50.4% strongly agreeing (mean = 4.5036, SD = 0.50182), reflecting strong collaborative engagement. The information gathered was utilized to develop realistic action plans, with 47.4% agreeing and 50.4% strongly agreeing (mean = 4.4599, SD = 0.61852).

Table 4

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .250 ^a | .063 | .056 | .40408 |

The results in Table 4 show that the correlation coefficient (R) of 0.250 indicates a weak positive relationship between needs assessment and rural education outcomes in public secondary schools in Gisagara District. The R Square value of 0.063 implies that needs assessment accounts for about 6.3% of the variation in rural education outcomes, suggesting that while needs assessment contributes to improved outcomes, other factors also play a more significant role.

Table 5

ANOVA

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|-------------------|
| 1 | Regression | 1.470 | 1 | 1.470 | 9.002 | .003 ^b |
| | Residual | 22.043 | 135 | .163 | | |
| | Total | 23.513 | 136 | | | |



The results from Table 5 indicate that the regression model examining the influence of needs assessment on rural education outcomes in public secondary schools in Gisagara District was statistically significant ($F = 9.002$, $p = .003$). This implies that needs assessment has a meaningful impact on improving rural education outcomes. The coefficient of determination suggests that a notable proportion of the variation in education outcomes can be attributed to how effectively needs assessments are conducted.

Table 6
Regression Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------------------------|-----------------------------|------------|---------------------------|-------|------|
| | B | Std. Error | Beta | | |
| (Constant) | 2.797 | .525 | | 5.324 | .000 |
| Needs Assessment | .365 | .122 | .250 | 3.000 | .003 |

Dependent Variable: Rural Education Outcomes

The regression results in Table 6 indicate that needs assessment had a statistically significant positive influence on rural education outcomes in public secondary schools in Gisagara District ($B = 0.365$, $t = 3.000$, $p = 0.003$). This suggests that for every unit increase in the effectiveness of needs assessment, rural education outcomes improve by 0.365 units, holding other factors constant. The positive standardized coefficient ($\beta = 0.250$) implies a moderate relationship between the two variables, meaning that when schools effectively identify and prioritize educational needs, they are better positioned to enhance students' learning conditions and performance. Thus, effective educational planning grounded in needs assessment contributes significantly to improving rural education outcomes. The interview results revealed that most schools in Gisagara District conduct systematic needs assessments to identify student learning challenges, teacher requirements, and infrastructure gaps, with active participation from teachers, parents, and community leaders.

4.3 Influence of Goal Setting on Rural Education Outcomes

The second question guided this study was about the influence of goal setting on rural education outcomes in public secondary schools in Gisagara District. The responses collected from questionnaires are summarized in table 5

Table 7
Teachers Responses on the Influence of Goal Setting on Rural Education Outcomes

| Statements | SD (N, %) | D (N, %) | N (N, %) | A (N, %) | SA (N, %) | Mean | Std. Dev. |
|--|-----------|----------|----------|-----------|-----------|--------|-----------|
| Our school sets academic goals | 0 (0.0) | 0 (0.0) | 1 (0.7) | 71 (51.8) | 65 (47.4) | 4.4672 | 0.51523 |
| Teachers are involved in school improvement planning. | 1 (0.7) | 0 (0.0) | 0 (0.0) | 71 (51.8) | 65 (47.4) | 4.4599 | 0.54252 |
| Our school goals are clearly communicated and aligned with students' needs | 1 (0.7) | 6 (4.4) | 0 (0.0) | 75 (54.7) | 55 (40.1) | 4.2920 | 0.74912 |
| There is a regular review of progress toward achieving school goals. | 0 (0.0) | 0 (0.0) | 1 (0.7) | 81 (59.1) | 55 (40.1) | 4.3942 | 0.50523 |
| The goals set consider the specific challenges students | 6 (4.4) | 0 (0.0) | 0 (0.0) | 81 (59.1) | 50 (36.5) | 4.2774 | 0.68309 |
| The defined goals have helped to improve student outcomes. | 0 (0.0) | 0 (0.0) | 1 (0.7) | 88 (64.2) | 48 (35.0) | 4.3431 | 0.49167 |

The results indicated that schools in Gisagara District set academic and operational goals reflecting local rural realities, with 51.8% agreeing and 47.4% strongly agreeing (mean = 4.4672, SD = 0.51523), showing a high level of goal relevance and contextual alignment. Teachers and staff were encouraged to participate in developing school improvement goals, with 51.8% agreeing and 47.4% strongly agreeing (mean = 4.4599, SD = 0.54252), suggesting collaborative engagement in planning processes. It was also observed that school goals were clearly communicated and aligned with student needs and local education priorities, with 54.7% agreeing and 40.1% strongly agreeing (mean = 4.2920, SD = 0.74912), indicating effective communication and alignment of objectives. Regular review of progress toward achieving goals was reported by 59.1% agreeing and 40.1% strongly agreeing (mean = 4.3942, SD = 0.50523), reflecting systematic monitoring of school performance, while 59.1% agreed and 36.5% strongly agreed that goals were achievable and considered rural community challenges (mean = 4.2774, SD = 0.68309), highlighting realistic and context-sensitive planning. Furthermore, clearly defined goals helped focus efforts and improve student outcomes, with 64.2% agreeing and 35% strongly agreeing (mean = 4.3431, SD = 0.49167), emphasizing goal-oriented school effectiveness.



Table 8
Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .432 ^a | .187 | .181 | .37635 |

The results in Table 8 indicate that the correlation coefficient ($R = 0.432$) between goal setting and rural education outcomes was moderate and positive. The coefficient of determination ($R^2 = 0.187$) shows that goal setting explained 18.7% of the variance in rural education outcomes among public secondary schools in Gisagara District, while the remaining 81.3% was due to other factors not included in the model. The Adjusted R Square (0.181) confirms the consistency and reliability of this relationship after accounting for predictors.

Table 9
ANOVA

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|--------|-------------------|
| 1 | Regression | 4.391 | 1 | 4.391 | 31.005 | .000 ^b |
| | Residual | 19.121 | 135 | .142 | | |
| | Total | 23.513 | 136 | | | |

The ANOVA results in Table 9 indicate that goal setting has a statistically significant influence on rural education outcomes, as evidenced by the F-value of 31.005 and a p-value of .000, which is below the 0.05 threshold. This implies that variations in teachers' responses regarding goal-setting practices can reliably predict differences in educational outcomes in rural schools.

Table 10
Regression Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|--------------|-----------------------------|------------|---------------------------|-------|------|
| | B | Std. Error | Beta | | |
| (Constant) | 2.398 | .356 | | 6.740 | .000 |
| Goal Setting | .451 | .081 | .432 | 5.568 | .000 |

a. Dependent Variable: Rural education outcomes

The results from Table 10 indicate that goal setting has a statistically significant positive influence on rural education outcomes in public secondary schools in Gisagara District ($B = 0.451$, $\beta = 0.432$, $t = 5.568$, $p < 0.001$). This suggests that schools where clear, measurable, and well-communicated goals are established tend to experience better student performance, higher teacher commitment, and overall improved educational delivery. The constant term ($B = 2.398$, $p < 0.001$) reflects the baseline level of rural education outcomes when goal setting is not considered. Interviews findings indicated that goal setting in Gisagara District schools is participatory, involving teachers, students, and community representatives, and aligns with the School Improvement Plans and national education priorities.

4.4 Influence of Policy Formulation on Rural Education Outcomes

The third question guided this study was about How does policy formulation influence rural education outcomes in public secondary schools in Gisagara District. The responses were provided in Table 11.

Table 11
Teachers Responses on the influence of Stakeholder's Involvement on Transition Rates

| Statements | SD (N, %) | D (N, %) | N (N, %) | A (N, %) | SA (N, %) | Mean | Std. Dev. |
|---|-----------|----------|----------|-----------|-----------|--------|-----------|
| policies formulation involve teachers and students | 4 (2.9) | 0 (0.0) | 0 (0.0) | 68 (49.6) | 65 (47.4) | 4.4161 | 0.64901 |
| Formulated policies are clearly communicated to all staff members. | 1 (0.7) | 0 (0.0) | 0 (0.0) | 74 (54.0) | 62 (45.3) | 4.4307 | 0.57899 |
| The policies address the educational challenges of rural learners. | 0 (0.0) | 1 (0.7) | 0 (0.0) | 69 (50.4) | 67 (48.9) | 4.4745 | 0.54341 |
| Policy implementation is monitored to ensure alignment with national education goals. | 0 (0.0) | 0 (0.0) | 1 (0.7) | 90 (65.7) | 46 (33.6) | 4.3285 | 0.48673 |
| School leadership actively enforces policies to promote accountability and consistency. | 0 (0.0) | 0 (0.0) | 0 (0.0) | 75 (54.7) | 62 (45.3) | 4.4526 | 0.49957 |
| The policies are adapted to school context | 3 (2.2) | 1 (0.7) | 0 (0.0) | 72 (52.6) | 61 (44.5) | 4.3942 | 0.62259 |



The results showed that policy development in schools involved consultation with teachers, students, and local community leaders, with 49.6% agreeing and 47.4% strongly agreeing (mean = 4.4161, SD = 0.64901), indicating strong participatory engagement in policy formulation. Policies were clearly communicated to staff, with 54.0% agreeing and 45.3% strongly agreeing (mean = 4.4307, SD = 0.57899), suggesting transparency and clarity in administrative processes. Schools had policies addressing the educational challenges of rural learners, as 50.4% agreed and 48.9% strongly agreed (mean = 4.4745, SD = 0.54341), reflecting targeted interventions for context-specific needs. Policy implementation was monitored to ensure alignment with district and national goals, with 65.7% agreeing and 33.6% strongly agreeing (mean = 4.3285, SD = 0.48673), showing effective oversight mechanisms. Leadership enforcement of policies to promote accountability received 54.7% agreement and 45.3% strong agreement (mean = 4.4526, SD = 0.49957), demonstrating active administrative commitment, while regular review and adaptation based on staff feedback and performance data was reported by 52.6% agreement and 44.5% strong agreement (mean = 4.3942, SD = 0.62259), highlighting iterative policy refinement.

Table 12
Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .460 ^a | .211 | .206 | .37062 |

Source: Researcher (2025)

The results in Table 12 indicate a moderate positive relationship between policy formulation and rural education outcomes, with a correlation coefficient (R) of 0.460. The R Square value of 0.211 suggests that approximately 21.1% of the variation in rural education outcomes can be explained by teachers’ perceptions of policy formulation, while the adjusted R Square of 0.206 accounts for model complexity and provides a slightly more conservative estimate. The standard error of 0.37062 indicates the average deviation of observed outcomes from predicted values.

Table 13
ANOVA

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|--------|-------------------|
| 1 | Regression | 4.969 | 1 | 4.969 | 36.179 | .000 ^b |
| | Residual | 18.543 | 135 | .137 | | |
| | Total | 23.513 | 136 | | | |

The ANOVA results in Table 13 indicate that policy formulation has a statistically significant influence on rural education outcomes in public secondary schools in Gisagara District, Rwanda (F = 36.179, p < 0.001). This suggests that variations in teachers’ perceptions of education outcomes can be reliably explained by the way policies are formulated.

Table 14
Regression Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|--------------------|-----------------------------|------------|---------------------------|-------|------|
| | B | Std. Error | Beta | | |
| (Constant) | 2.214 | .360 | | 6.151 | .000 |
| Policy formulation | .488 | .081 | .460 | 6.015 | .000 |

a. Dependent Variable: Rural education outcomes

The regression results indicate that policy formulation has a statistically significant positive influence on rural education outcomes in public secondary schools in Gisagara District (B = 0.488, β = 0.460, t = 6.015, p < 0.001). In addition, interview results indicated that most schools have written policies addressing teaching standards, inclusivity, and learner welfare, though implementation is sometimes hindered by limited resources and inconsistent monitoring.

4.5 Influence of Supervision of Data-Based Decision Making on Rural Education Outcomes

The fourth question guided this study was about What is the influence of data-based decision making on rural education outcomes in public secondary schools in Gisagara District. The responses from questionnaires are summarized in Table 15.

Table 15*Responses on the Influence of Supervision of Remedial Program on Transition Rates*

| Statements | SD (N, %) | D (N, %) | N (N, %) | A (N, %) | SA (N, %) | Mean | Std. Dev. |
|--|--------------|-------------|-------------|-------------|--------------|--------|-----------|
| Our school regularly collects data on attendance, performance, and discipline. | 4 (2.9) | 0 (0.0) | 0 (0.0) | 78 (56.9) | 55 (40.1) | 4.3431 | 0.63522 |
| Assessment data aims to identify areas needing improvement. | 1 (0.7) | 6 (4.4) | 0 (0.0) | 75 (54.7) | 55 (40.1) | 4.2920 | 0.74912 |
| Decisions about resource allocation in our school are guided by available data and statistics. | 1 (0.7) | 5 (3.6) | 0 (0.0) | 77 (56.2) | 54 (39.4) | 4.2993 | 0.72116 |
| data helps to address education gaps and improve teaching methods. | 1 (0.7) | 0 (0.0) | 0 (0.0) | 67 (48.9) | 69 (50.4) | 4.4818 | 0.58287 |
| Regular data review meetings are held to monitor academic progress in our school. | 0 (0.0) | 6 (4.4) | 0 (0.0) | 73 (53.3) | 58 (42.3) | 4.3358 | 0.69955 |
| Data analysis has helped our school improve planning and learning outcomes. | 0 (0.0) | 3 (2.2) | 0 (0.0) | 88 (64.2) | 46 (33.6) | 4.2920 | 0.58361 |

The results indicated that schools in Gisagara District actively collected and used data on student attendance, performance, and discipline to guide planning, with 56.9% agreeing and 40.1% strongly agreeing (mean = 4.3431, SD = 0.63522), showing that data collection was a common practice. School leaders and teachers utilized examination and assessment data to identify areas needing improvement, with 54.7% agreeing and 40.1% strongly agreeing (mean = 4.2920, SD = 0.74912), reflecting reliance on evidence for instructional decisions. Decisions about resource allocation were guided by data, with 56.2% agreeing and 39.4% strongly agreeing (mean = 4.2993, SD = 0.72116), indicating that statistical evidence informed resource distribution. Data was also employed to address education gaps and improve teaching methods, especially for rural students, with 48.9% agreeing and 50.4% strongly agreeing (mean = 4.4818, SD = 0.58287), demonstrating the role of data in enhancing pedagogical practices. Regular data review meetings were conducted to monitor academic progress, with 53.3% agreeing and 42.3% strongly agreeing (mean = 4.3358, SD = 0.69955), highlighting a culture of continuous evaluation. In addition, data analysis helped improve planning and learning outcomes, with 64.2% agreeing and 33.6% strongly agreeing (mean = 4.2920, SD = 0.58361), emphasizing the tangible benefits of evidence-based decision-making.

Table 16*Model Summary*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .522 ^a | .272 | .267 | .35598 |

The results from Table 16 show that data-based decision making has a moderate positive relationship with rural education outcomes, with an R value of 0.522. The R Square of 0.272 indicates that approximately 27.2% of the variance in rural education outcomes can be explained by teachers' use of data-driven decision-making practices, while the adjusted R Square of 0.267 suggests a slightly conservative estimate accounting for sample size. The standard error of 0.356 reflects the average deviation of observed outcomes from the predicted values.

Table 17*ANOVA*

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|--------|-------------------|
| 1 | Regression | 6.406 | 1 | 6.406 | 50.550 | .000 ^b |
| | Residual | 17.107 | 135 | .127 | | |
| | Total | 23.513 | 136 | | | |

The ANOVA results indicate that data-based decision making significantly influences rural education outcomes in public secondary schools in Gisagara District ($F = 50.550$, $p < 0.001$). The high F-value and the significance level suggest that teachers' utilization of evidence and educational data in planning and instructional decisions has a strong predictive effect on school performance and student outcomes.

Table 18
Regression Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---------------------|-----------------------------|------------|---------------------------|-------|------|
| | B | Std. Error | Beta | | |
| (Constant) | 2.109 | .319 | | 6.602 | .000 |
| Data-based decision | .521 | .073 | .522 | 7.110 | .000 |

a. Dependent Variable: Rural education outcomes

The regression results indicate that data-based decision making has a significant positive influence on rural education outcomes in public secondary schools in Gisagara District, Rwanda ($B = 0.521$, $\beta = 0.522$, $t = 7.110$, $p < 0.001$). This suggests that for every unit increase in the use of data-driven strategies, rural education outcomes improve by 0.521 units, highlighting the critical role of evidence-informed planning. Interview results showed that schools collect and analyze data on student performance, attendance, and behavior to inform planning and teaching practices

4.6 Discussion

4.6.1 Influence of Needs Assessment on Rural Education Outcomes

According to results, there is widespread use of needs assessment within public secondary schools in Gisagara District. The most Participants agree that schools identify learning difficulties, involve teachers and community members in learning and planning, and consider the needs of disadvantaged students. Participants also provided very high mean scores between 3.98 and 4.50, suggesting that they believe that the school's plan for students is built around their actual needs along with those of teachers and the school building. These findings support the conclusion that conducting a needs analysis on a local level adds to the relevance and equity of educational interventions to local and rural communities (Hauer, 2011).

The level of participation from stakeholders in this study was also reported to be high; nearly all Participants indicated that teachers, parents, and members of the community are involved in the planning process for their schools. This supports what has been found in the literature regarding the increased accountability that results from the use of participatory planning and how this ensures that educational priorities developed at the local level reflect the realities of the community, particularly within rural/remote settings (Garira, 2020). In addition, Participants indicated that the information obtained through the needs assessment used to create an action plan reinforces the use of evidence-based planning to improve student performance in schools (Hunt, 2002). However, results from the regression analysis showed that while there is a positive relationship between needs assessment and education-related outcomes in rural areas, the strength of the relationship is marginal ($R = 0.250$; $R^2 = 0.063$). In essence, needs assessment only explained 6.3% of the variation in education-related outcomes in rural areas. The statistically significant model using an analysis of variance ($F = 9.002$; $p = .003$) and the positive coefficient ($\beta = 0.250$; $p = .003$) suggest that needs assessment positively impacts improvements also supported by other components of planning, to produce greater results. This is also consistent with Lowenthal (2012), stating that after conducting a needs assessment, it is necessary to allocate sufficient resources; conduct ongoing monitoring; and implement effectively for Learning Outcomes to be enhanced substantially.

4.6.2 Influence of Goal Setting on Rural Education Outcomes

The findings of this study demonstrated that teachers are actively involved in establishing school improvement plans. Goal-setting significantly correlates with outcomes in rural education, according to regression analyses ($R = 0.432$; 18.7% variances), and differences in the way schools create goals affect the differences in their outcome ($F = 31.005$; $p < .05$). Goal-setting practices were statistically significant predictors of student learning and the educational effectiveness of school systems ($\beta = 0.432$; $p < .001$). This is aligned with Moeller et al. (2012), Urgo and Arguello (2024) and Expósito-Álvarez et al. (2024) who found that providing the structured and measurable goals is essential to improving overall educational outcomes.

4.2.3 Influence of Policy Formulation on Rural Education Outcomes

According to the findings, the majority of teachers agreed that policies are created via stakeholder consultation. They are communicated clearly and regularly; they are reviewed regularly; and they align with both school goals and national goals. This indicates the use of a participatory approach to planning processes. The regression results ($R=0.460$; $R^2=0.211$; $\beta=0.460$; $p<0.001$), demonstrates a significant positive relationship of policy formulation with education outcomes. Indicating that, increased quality in designed and implemented policies which address the specific challenges of rural schools can help to improved performance in these schools. These findings support the study of Sari (2025), Wemesa (2026) and Wemesa (2025). The interview data indicate that while the majority of

schools have policies related to this issue, challenges such as insufficient resources or inconsistent monitoring can impede the full implementation of these policies (Bolhaar (2019).

4.2.4 Influence Data-Based Decision Making on Rural Education Outcomes

The results from questionnaires shows that, data-based decision-making practices were reported to have a positive impact on planning and student achievement ($M= 4.2920$, $SD=0.584$). The regression analysis ($R = 0.522$, $R^2 = 0.272$, $Adj R^2 = 0.267$) is statistically significant with positive relationship between the use of data to make decisions and the education outcomes. The ANOVA analysis provides statistical evidence confirming the significance of this relationship (F statistic = 50.550; $p < 0.001$). The regression results ($B = 0.521$, $\beta = 0.522$, $t = 7.110$, $p < 0.001$) indicate that for each one-unit increase in the use of data to make decisions, there is an increase of 0.521 units in the education outcomes. Therefore, the intentional and systematic use of data in planning improves the academic performance of students and the efficiency of schools located in rural areas. These findings are in line with the study of Van Geel et al. (2016) and Schildkamp (2019). The findings from interviews also supported the quantitative findings. Some school leaders reported that utilization the use of data have resulted in improved lesson planning for teachers, providing early interventions to address the needs of at-risk students. These are in line with the study of Visscher (2021).

V. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This study found the significant influence of educational planning to the education outcomes. The data based decision-making was found to be the most significant variable among goal setting, needs assessments, and developing policies. Proper monitoring, using feedback, performance data and ongoing review of policies permit policies to sufficiently address the distinct educational needs of rural learners. The result is improvements in overall student performance and the quality of education.

5.3 Recommendations

The study recommends the Ministry of Education to develop and implement the policies that address the specific challenges of rural schools. It also recommends the Ministry not -to evaluate rural schools on the same standards with urban schools. The School leaders should be based on data to make informed decisions in strategic planning. They should also establish the structured supervision of school initiatives.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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