

INFLUENCE OF PLANNING AND SCHEDULING ON THE PERFORMANCE SECONDARY SCHOOL STUDENTS IN RWANDA: CASE OF PUBLIC SECONDARY SCHOOLS IN GASABO DISTRICT.

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Abstract

This study examines the influence of planning and scheduling on the academic performance of secondary school students in public schools within Gasabo District, Rwanda. The research explores how structured scope definition, effective time management, and stakeholder involvement contribute to students' goal achievement and overall performance. The study adopted a descriptive survey design involving both qualitative and quantitative approaches. Qualitative analysis included a review of existing literature and interviews, while quantitative analysis involved the collection and analysis of data. This study targeted three stakeholders from forty-two public secondary schools in Gasabo District making a total of 126 participants. Slovin's formula was used to calculate the 96-person sample size. The study used a purposive sampling technique. Primary and secondary data were used in the study. While secondary data was gathered from ministry reports, academic journals, and official publications, primary data was gathered via a questionnaire and interview guide. Data was coded in order to classify answers and pinpoint important ideas or concepts. To facilitate future analysis, this procedure aids in organizing the qualitative data. The analysis of quantitative data obtained from closed-ended survey questions involved the utilization of descriptive statistics, including means, standard deviations, frequencies, and percentages. To strengthen the findings' validity and corroborate the findings, qualitative and quantitative data was triangulated. The analysis of the responses regarding planning and scheduling in schools shows a positive trend toward their effectiveness in enhancing student performance. Teachers' lesson planning was seen as influential, with a high agreement level ($M = 4.16$, $SD = 0.998$), indicating that the majority believe it improves students' understanding. Scheduling regular study sessions was rated even higher ($M = 4.34$, $SD = 0.893$), supporting the notion that it helps students retain information better. Structured schedules were perceived to reduce student stress ($M = 4.32$, $SD = 0.925$), while school-wide planning initiatives were viewed as significantly improving the learning environment ($M = 4.43$, $SD = 0.716$). Additionally, the use of planners and schedules, which is supported by school administrations, garnered strong agreement ($M = 4.62$, $SD = 0.644$). Finally, regular reviews and adjustments to schedules were seen as critical to improving student performance ($M = 4.50$, $SD = 0.749$). The composite mean of 4.40 reflects a generally strong consensus on the importance of planning and scheduling in

fostering academic success. In conclusion, this study found that effective planning and scheduling significantly enhance student performance in secondary schools by improving time management, reducing stress, and fostering a structured learning environment. It is recommended that schools implement regular reviews of schedules, encourage the use of planners, and engage stakeholders such as parents and administrators to support students' academic success. For future studies, researchers should explore the long-term impact of planning and scheduling on student performance across different educational contexts and examine the role of emerging technologies in enhancing these processes.

Keywords: *Planning, Scheduling, Academic Performance, Secondary Education, Rwanda.*

1.1 Background of the Study

Project management has become a critical instrument for improving secondary students' performance in the increasingly competitive global educational scene (Martinez & Garcia, 2017). The incorporation of project management principles provides an organized method for accomplishing the objectives of education systems across the globe, which are to prepare students for the skills of the twenty-first century (Brown & Clark, 2020). Project management is the process of organizing, carrying out, and supervising projects in order to effectively achieve predetermined goals. Using these ideas in education can help to resolve a variety of challenges, including student involvement, curriculum implementation, and resource allocation, ultimately enhancing academic outcomes (Kerzner, 2017).

Project management practices can significantly enhance teaching methodologies by fostering innovation and engaging learning environments (Lee & Kim, 2020). Project-based learning (PBL), a pedagogical approach grounded in project management, encourages students to work on real-world problems and projects over extended periods (Lock, 2020). This method has been shown to increase student motivation, promote deeper understanding of the subject matter, and improve critical thinking and problem-solving skills (Orodho, 2018). Globally, schools that implement PBL have reported higher student achievement and better preparation for future academic and career challenges (Schwalbe, 2019).

Resource management is another critical area where project management principles have made a substantial impact in American schools. Efficient management of resources, including financial, human, and material resources, ensures that schools can maximize their educational outputs (Kerzner, 2017). Studies have shown that schools employing project management techniques are better equipped to handle budget constraints and resource limitations, leading to improved educational outcomes (Marsh & Farrell, 2019). Effective resource allocation strategies are particularly vital in addressing disparities in educational access and quality across different regions and demographic groups in the U.S. (Baker, Sciarra, & Farrie, 2019).

China's rapid economic development and emphasis on innovation have driven educational reforms that prioritize efficient management of resources and systematic planning (Wang, 2017). By applying project management techniques, Chinese schools aim to improve the effectiveness of educational initiatives, ensuring that academic goals are met while optimizing resource use

(Huang, 2018). PBL emphasizes hands-on, experiential learning, allowing students to engage in projects that develop critical thinking, problem-solving, and collaboration skills (Chen & Yang, 2019). Research has shown that PBL not only enhances student engagement but also improves academic performance, particularly in STEM (science, technology, engineering, and mathematics) subjects, which are crucial for China's future workforce (Zhao & Zhang, 2020).

In Sub-Saharan Africa, the application of project management principles in education is emerging as a significant strategy to enhance student performance and educational outcomes. This approach involves the systematic planning, execution, monitoring, and evaluation of educational initiatives, ensuring that resources are optimally utilized and objectives are achieved efficiently (Marzouk & Tarek, 2018). With the region facing numerous educational challenges, including resource constraints and varying educational standards, the integration of project management techniques is seen as a vital tool for driving improvements in educational systems (Otieno, 2019).

Project-based learning (PBL) is a key educational strategy that aligns with the broader project management framework and is gaining traction in Ghanaian schools. PBL emphasizes student-centered projects that promote critical thinking, collaboration, and real-world problem-solving skills (Addo, 2020). Research indicates that PBL significantly enhances student engagement and academic performance, particularly in science, technology, engineering, and mathematics (STEM) subjects, which are crucial for Ghana's economic development (Owusu & Essel, 2017). By fostering essential 21st-century skills, PBL prepares students for future academic and career challenges, contributing to the nation's development goals (Boateng, 2018).

Efficient management of financial, human, and material resources ensures that schools can maximize their educational outputs despite facing budgetary constraints in Kenya (Nyagah, 2018). Studies have shown that schools employing project management techniques are better equipped to handle resource limitations, leading to improved educational outcomes (Kiplangat & Mureithi, 2020). This approach is particularly vital in addressing disparities in educational access and quality across urban and rural regions of Kenya (Simiyu & Cheruiyot, 2020).

In Rwanda, the adoption of project management principles in the education sector is gaining momentum as a strategic approach to improving student performance and overall educational outcomes. Rwanda has made significant strides in rebuilding its educational system after the 1994 genocide, but challenges such as resource constraints, disparities in educational quality, and the need for better infrastructure persist (Nsabimana & Uwizeyimana, 2018). Integrating project management techniques—such as systematic planning, execution, monitoring, and evaluation—into educational practices is seen as a way to address these issues effectively and align initiatives with national educational goals (Mukamurenzi & Ndahiro, 2020).

Project-based learning (PBL), a key component of project management, is being increasingly implemented in Rwandan schools. PBL emphasizes student-centered projects that promote critical thinking, collaboration, and real-world problem-solving skills (Niyibizi & Karangwa, 2021). Research indicates that PBL significantly enhances student engagement and academic performance, particularly in STEM (science, technology, engineering, and mathematics) subjects, which are essential for Rwanda's socio-economic development (Mukasakindi & Ndayambaje,

2019). By fostering essential 21st-century skills, PBL prepares students for future academic and career challenges, thus contributing to the nation's vision of becoming a knowledge-based economy (Uwitonze & Kamanzi, 2018).

In Rwanda, particularly in the Gasabo District, the adoption of project management principles in the educational sector is seen as a critical strategy for enhancing student performance and educational outcomes. Gasabo District, a central region within Kigali, faces unique educational challenges including resource constraints, varying educational standards, and the need for improved infrastructure (Nsabimana & Mutabazi, 2019). By implementing project management techniques such as systematic planning, execution, monitoring, and evaluation, schools in this district aim to address these challenges effectively. This structured approach ensures that educational initiatives are well-managed and aligned with both district and national educational objectives, leading to more efficient and impactful educational practices.

1.2 Statement of the Research Problem

Despite efforts by the Rwandan government to improve the quality of education, public secondary schools in Gasabo District continue to face challenges in enhancing student performance. According to the National Examination and School Inspection Authority (NESA), the average national exam pass rate for secondary students in Gasabo District dropped by 5% between 2018 and 2022, from 75% to 70% (NESA, 2023). This decline highlights an ongoing problem in achieving desired educational outcomes, particularly in public schools where resource constraints and ineffective management practices are common. Although project management practices have been introduced in some schools to improve performance, many institutions lack the structured approaches needed to effectively manage educational projects (Niringiyimana, 2021). Without adequate project planning, execution, and monitoring, these schools struggle to meet performance targets, resulting in lower student achievement and gaps in educational equity (Mutabazi, 2022). This study aims to investigate how project management practices impact student performance in public secondary schools in Gasabo District, Rwanda.

While studies have explored various aspects of project management in education, the focus has largely been on higher education and other sectors (Nshimiyimana & Ntakirutimana, 2020; Mugisha & Nsengiyumva, 2022). In secondary education, particularly in public schools, the empirical evidence is limited, and few studies provide concrete data on how the application of project management techniques influences student performance. For instance, Ndayisenga (2022) highlights challenges related to poor resource allocation and execution, but does not thoroughly investigate the direct impact on academic achievement. Similarly, Uwizeye (2022) identifies issues with leadership and project monitoring in public secondary schools but fails to link these factors explicitly to student performance outcomes. This gap in the literature underscores the need for more focused empirical studies that examine the role of project management practices in improving student outcomes in Rwanda's secondary schools.

2.0 Literature Review

2.1 Empirical Review - Planning and Scheduling on Students' Performance

The role of planning and scheduling in enhancing students' academic performance has been extensively explored in educational research. Studies have consistently shown that structured approaches to managing time and tasks contribute significantly to students' learning outcomes. For instance, Johnson and Johnson (2020) investigated the effects of project-based learning (PBL), which emphasizes rigorous planning and scheduling, on secondary students' academic achievement. Their quasi-experimental study demonstrated that students engaged in PBL activities exhibited higher academic scores compared to those in traditional classrooms, highlighting the efficacy of structured project management methodologies in educational settings.

Moreover, McKenzie and Mancuso-Murphy (2018) conducted a longitudinal survey focusing on college students' use of time management strategies, including planning and scheduling techniques. This study underscores the importance of integrating planning and scheduling skills into students' routines to foster academic success throughout higher education.

In the context of secondary education, Smith and Brown (2017) investigated the impact of weekly planning and scheduling on high school students' homework completion rates. Using a mixed-methods approach, they found that students who engaged in structured weekly planning demonstrated higher rates of homework completion and reported reduced academic stress. This study suggests that teaching students effective planning and scheduling techniques can lead to more efficient use of study time and better academic outcomes.

Furthermore, Nguyen and Terlizzi (2019) explored the effects of project management techniques, including planning and scheduling tools, on student engagement and learning outcomes in secondary classrooms. Their case study approach across multiple schools revealed that systematic project management practices enhanced student engagement and facilitated deeper learning experiences. This research supports the notion that incorporating structured planning and scheduling into curriculum design can positively impact student motivation and academic achievement.

Lastly, Chang and Yu (2019) conducted an experimental study focusing on task scheduling techniques and their effects on academic performance among middle school students. Through randomized controlled trials, they demonstrated that students who received training in effective task scheduling exhibited significant improvements in academic performance compared to their peers. This study underscores the importance of teaching students' organizational skills early on, as it can lead to substantial gains in academic achievement.

2.2 Theoretical Literature on Planning and Scheduling

Planning and scheduling are fundamental aspects of project management, essential for orchestrating complex tasks within defined timelines and resources. Effective planning involves the systematic arrangement of activities and resources to achieve specific objectives (PMI, 2017).

According to Kerzner (2017), planning sets the foundation for project success by outlining clear goals, identifying critical milestones, and allocating resources efficiently.

Scheduling, on the other hand, translates planning into actionable timelines and sequences of tasks (Project Management Institute [PMI], 2017). It involves the allocation of resources and determination of task dependencies to optimize project execution. As highlighted by Meredith and Mantel (2022), scheduling methodologies such as Critical Path Method (CPM) and Program Evaluation and Review Technique (PERT) are widely used to manage project timelines effectively. These techniques help in identifying the critical path—the sequence of activities that dictate the project's overall duration—and managing slack or float time to mitigate risks of delays.

The integration of planning and scheduling methodologies is crucial for enhancing project performance and ensuring timely delivery of outcomes (Kerzner, 2017). By aligning tasks with available resources and constraints, project managers can minimize bottlenecks and optimize resource utilization throughout the project lifecycle (Project Management Institute [PMI], 2017).

In practice, planning and scheduling are iterative processes that require continuous monitoring and adjustment (Meredith & Mantel, 2022). As projects evolve, unforeseen challenges may arise, necessitating revisions to the initial plans and schedules. Effective project managers employ adaptive planning strategies and leverage advanced scheduling tools to maintain flexibility and responsiveness in dynamic environments (Kerzner, 2017).

Planning is considered the foundation of project management. It ensures that project objectives are clear and achievable within the given constraints. As noted by Lock (2020), thorough planning facilitates better decision-making and improves communication among stakeholders. It also sets the stage for effective scheduling by providing a clear understanding of the tasks that need to be completed and the sequence in which they should be executed.

Planning and scheduling are interdependent processes that must be integrated to achieve project success. Effective planning provides the framework within which scheduling operates. Conversely, scheduling feedback can inform and refine the planning process. According to Project Management Institute (PMI, 2017), integrating planning and scheduling ensures that project activities are aligned with the overall objectives and resources are utilized optimally. This synergy enhances the project's ability to adapt to changes and maintain momentum towards its goals.

Despite their importance, planning and scheduling present several challenges. Unforeseen events, resource constraints, and changes in project scope can disrupt the planned schedule. To address these challenges, project managers must adopt best practices such as continuous monitoring, regular updates to the project plan and schedule, and proactive risk management. As highlighted by Heagney (2020), flexibility and adaptability are crucial in managing the dynamic nature of projects. Incorporating these practices can help in maintaining control over the project and achieving successful outcomes.

2.3 Resource Dependence Theory

According to Pfeffer and Salancik (2018), Resource Dependence Theory (RDT) offers a useful paradigm for comprehending how organizations, especially educational institutions, depend on outside resources to accomplish their aims and objectives. In the context of secondary education in Rwanda, where schools often face challenges in resource allocation, RDT underscores the importance of strategic planning and scheduling to optimize resource utilization and enhance student performance. Effective planning involves allocating teaching materials, class schedules, and support services in a manner that maximizes educational outcomes.

Research has shown that proper planning and scheduling positively impact student performance by improving time management, study habits, and overall academic achievement (Wolters & Hussain, 2019). In Rwanda, where secondary education reforms emphasize equitable access and quality improvement, applying RDT principles can help schools navigate resource constraints to support effective learning environments. This approach aligns with global educational strategies that prioritize efficient resource allocation to address diverse student needs and enhance educational outcomes (UNESCO, 2020).

Empirical studies highlight the link between planning, scheduling, and academic success. For instance, studies in other contexts have demonstrated that structured scheduling of study time and allocation of instructional resources correlate with improved student engagement and learning outcomes (Britton & Tesser, 2021; Credé & Kuncel, 2018). Applying these findings to Rwanda's secondary education sector can inform policies and practices that promote effective resource management and equitable educational opportunities for all students.

In conclusion, leveraging Resource Dependence Theory to optimize planning and scheduling practices in Rwanda's secondary schools can enhance educational outcomes by ensuring efficient resource allocation and improving student performance. By adopting strategic approaches to resource management, educators and policymakers can mitigate challenges related to resource scarcity and foster environments conducive to academic excellence and student success..

2.4 Conceptual Framework

A conceptual framework serves as a foundational structure that guides research and provides a theoretical lens through which phenomena are studied and understood. According to Miles and Huberman (2018), a conceptual framework helps researchers organize ideas, clarify relationships between variables, and establish a coherent basis. It serves as a roadmap for identifying research gaps, formulating hypotheses, and interpreting findings within a specific discipline or study context. By grounding research within a conceptual framework, scholars can enhance the rigor and theoretical grounding of their studies, ensuring that their investigations contribute meaningfully to existing knowledge (Creswell, 2018). This is shown in Figure 1.

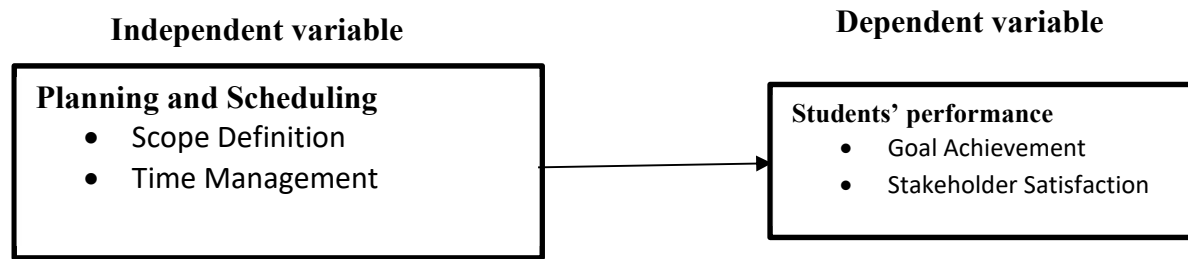


Figure 1: Conceptual framework

Source: Researcher, 2024

The conceptual framework for this study is based on the relationship between planning, scheduling, and students' performance in secondary education. Effective planning involves clear scope definition, which outlines the objectives and activities necessary for academic success (Arunachalam, 2020). Scheduling plays a pivotal role in time management, ensuring that students allocate sufficient time for study, assignments, and extracurricular activities (Iqbal et al., 2021). The alignment of these elements is crucial for achieving goal achievement, as well-structured planning and time management foster improved academic performance (Chen, 2019). Furthermore, this framework considers the satisfaction of key stakeholders—teachers, students, and parents—who play a vital role in ensuring a supportive educational environment (Ogunniyi & Adesina, 2022). When these factors are effectively managed, they contribute to the overall success and improved academic performance of students (Ndiokubwayo & Habimana, 2023).

3.0 Research Methodology

Research Design

The research design for this study on the role of project management in secondary students' performance in Gasabo District, Rwanda, employed descriptive survey design to gather comprehensive insights into the implementation and impact of project management practices. In order to more thoroughly answer research topics, mixed-methods research integrates both qualitative and quantitative data gathering and analysis techniques (Creswell & Creswell, 2018). The impact of project management practices on students' academic achievement was measured quantitatively using metrics like marks on project-based assignments and results on standardized tests. This approach aligns with previous studies that have used quantitative measures to assess educational interventions (Bell, 2019).

Additionally, qualitative methods, including interviews and focus groups with students, teachers, and administrators, was employed to explore perceptions, experiences, and challenges related to the implementation of project management practices. Thematic analysis of qualitative data was used to find recurrent themes and revelations (Guest, MacQueen, & Namey, 2022). Descriptive

survey design provided a holistic understanding of how project management practices influence secondary students' performance in Gasabo District, Rwanda, combining quantitative rigor with qualitative depth to enrich the study's findings and recommendations.

Target Population

The target population for this study comprises key stakeholders involved in secondary education within Gasabo District, Rwanda. According to the Ministry of Education report (2019), Gasabo District hosts a total of 42 public secondary schools. The study aims to include three stakeholders from each of these schools, totaling 126 participants. Specifically, the targeted stakeholders included 42 head teachers, 42 directors of studies, and 42 deans of students.

Table 1: Target Population

Category	Population
Head Teacher	42
Director of Studies	42
Dean of Students	42
Total	126

Source: *Gasabo District 2024*

Sampling Procedures and Techniques

The sampling procedures and techniques employed in this study adhere to rigorous methodological standards to ensure the validity and reliability of the findings. Following recommendations by Kothari (2019) a stratified random sampling approach was utilized to select representative samples of students from public secondary schools across Gasabo District, Rwanda. Stratification is based on school size, academic performance, and geographical location to ensure adequate representation of diverse student populations.

Using the rules for establishing sample size in mixed-methods research (Creswell & Plano Clark, 2018), 96 respondents was chosen from the target population of 126. According to Kothari (2019) a sample size of 100 to 500 respondents is generally considered adequate for surveys aiming for a representative sample within a heterogeneous population. Additionally, Hair *et al.*, (2019) suggest that a sample size of at least 100 respondents is sufficient for conducting regression analysis to examine relationships between variables. Therefore, a sample size of 96 respondents was selected to ensure adequate representation across different categories of the population. This methodological approach ensures that the selected sample is representative of the broader population, thereby enhancing the validity and reliability of the study findings.

$$n = \frac{N}{1+N(e)^2} \dots \dots \dots (1)$$

In the context of a population size of 126, the sample size was calculated using Slovin's formula. The computation might be as follows, assuming a target margin of error (e) of 5%, which is frequently employed in many research studies:

$$n = \frac{126}{1 + 126(0.05)^2} \approx 95.8 = 96$$

Therefore, for a population of 126, the sample size determined using Slovin's formula with a 5% margin of error would be approximately 96.

Table 2: Sample size Selection

Category	Population	Sample Size
Head Teacher	42	32
Director of Studies	42	32
Dean of Students	42	32
Total	126	96

Source: *Gasabo District 2024*

The study adopted a purposive sampling technique to select participants, focusing on individuals who are most relevant and knowledgeable about the project management practices in public secondary schools in Gasabo District, Rwanda. Purposive sampling is a non-probability sampling method that allows the researcher to intentionally choose participants who have specific characteristics or experiences related to the study objectives (Mugenda & Mugenda, 2017). In this case, key informants such as school administrators, project managers, and teachers involved in the planning and execution of educational projects was targeted. This technique ensures that the sample consists of respondents who possess in-depth knowledge of the project management practices being implemented, enabling the study to gather valuable insights into how these practices impact student performance.

Data Collection Methods

The data collection methods for this study on the role of project management in secondary students' performance in Gasabo District, Rwanda, employed a mixed-methods approach. Quantitative data was gathered through surveys distributed to the targeted stakeholders head teachers, directors of studies, and deans of students—in each of the 42 public secondary schools.

A standardized questionnaire that is sent to students, instructors, and administrators was used to collect primary data for this study on the impact of project management on the performance of secondary students in Gasabo District, Rwanda. The questionnaire included items designed to assess perceptions of project management practices, their implementation, and their perceived impact on academic performance and skill development. This approach aligns with best practices in educational research where surveys are utilized to gather quantitative data on perceptions and experiences (Creswell & Creswell, 2017). Additionally, secondary data was collected using a data collection sheet to compile and analyze existing academic performance records, attendance data,

and other relevant metrics from school archives. This mixed-methods approach ensures a comprehensive examination of the research questions by triangulating self-reported perceptions with objective performance data (Teddle & Tashakkori, 2021). This was collected using published reports and journals.

Pilot Testing

Pilot study was conducted with 10% of the total sample, equating to 10 respondents, at Karagarama Secondary School in Kicukiro District. The primary objective of this pilot study is to evaluate the comprehensiveness, relevance, and clarity of the research instruments, particularly the questionnaires, to ensure they are well-suited for the main study. This process is crucial for verifying face validity, which involves determining whether the questions appear to effectively measure the intended variables (Niyonsenga & Mushi, 2019). By pre-testing the instruments in a setting similar to the actual study, the researcher can identify and address any ambiguities or issues in the questionnaire design, making necessary adjustments before administering the final version. This ensures that the data collection tools are optimized for accuracy and reliability when used in the larger sample.

Validity

In order to guarantee the precision, consistency, and legitimacy of study findings, validity and reliability are essential components of research methodology (Bryman, 2020). The degree to which a research study assesses what it is intended to measure is referred to as validity (Yin, 2018). Maintaining the accuracy and dependability of study outcomes depends on the validity of research tools. The validity of research tools was thoroughly evaluated in this study using a variety of techniques. First, survey questions and interview protocols were matched with accepted theoretical frameworks and extant literature on the factors influencing academic performance in public secondary schools in Rwanda's Gasabo District in order to ensure content validity (Gasana & Munyandamutsa, 2018; Twagiramariya & Karangwa, 2021). Thirdly, to make sure the instruments sufficiently capture the targeted constructs, construct validity was evaluated by looking at the connection between the variables measured by the instruments and pertinent academic outcomes (Nsengiyumva & Karema, 2020).

Table3: Content Validity Index

Rater	Total items	Valid items	Validity index
1	35	30	0.8571
2	36	29	0.8056
3	34	30	0.8824
4	33	28	0.8485
Average			0.8484

Source: **Pilot data results**, (2024)

Table 3 presents the Content Validity Index (CVI) for the study, illustrating the evaluation of content validity by four raters. The CVI scores range from 0.8056 to 0.8824, with an average CVI

of 0.8484. This index indicates a high level of agreement among the raters regarding the relevance of the items included in the instrument. For instance, Rater 1 assessed 35 items, with 30 deemed valid, yielding a validity index of 0.8571. Similarly, Rater 3 achieved the highest CVI of 0.8824 by validating 30 out of 34 items. These findings align with contemporary literature that suggests a CVI above 0.80 is acceptable for establishing content validity in educational and social science research (Polit & Beck, 2021). This high level of validity across raters corroborates the reliability of the measurement instrument used in the study, as consistent evaluations are essential for robust data collection (Zamanzadeh *et al.*, 2018).

Reliability

Achieving a high degree of internal consistency among the items that make up each instrument is crucial to guaranteeing the validity of the research instruments used in this study. Cronbach's alpha coefficient is used to evaluate this internal consistency; a predefined threshold of 0.7 is used to indicate good dependability (George & Mallery, 2018). Through rigorous validation procedures, including pilot testing and expert reviews, the research instruments are refined to maximize their reliability. Moreover, efforts are made to ensure clarity and coherence in the wording of survey items and interview questions, reducing the likelihood of response errors and enhancing the reliability of collected data (DeVellis, 2017). By adhering to established guidelines and employing Cronbach's alpha coefficient as a benchmark, the research instruments are systematically validated, providing a solid foundation for robust data collection and analysis in this study.

Table 4: Reliability Analysis

Variable	Cronbach's Alpha	Comments
Planning and Scheduling	0.790	Reliable
Students' Performance	0.887	Reliable

Source: **Pilot data results**, (2024)

The reliability analysis in Table 4 indicates that both variables—Planning and Scheduling and Students' Performance—have acceptable levels of reliability, as measured by Cronbach's Alpha. The Planning and Scheduling variable shows a Cronbach's Alpha of 0.790, which falls within the range of good reliability (Hair *et al.*, 2019). This suggests that the items used to measure planning and scheduling are consistent and provide reliable results. Similarly, Students' Performance demonstrates a higher Cronbach's Alpha of 0.887, indicating strong reliability and consistency in the responses related to student outcomes (Tavakol & Mohagheghi, 2020). Both variables exceed the generally accepted threshold of 0.70 for Cronbach's Alpha, confirming the reliability of the constructs used in this study (Zikmund *et al.*, 2022).

Data Analysis

In order to analyze the data for this project, statistical methods were used to investigate the connection between secondary student performance in Rwanda. To enumerate the features of the

data gathered from the sample population, descriptive statistics like mean, median, and standard deviation was applied. The relationships and dependencies between the independent variables (tool use) and the dependent variable (student performance) was investigated using inferential statistics such as correlation analysis, regression analysis, and analysis of variance (ANOVA).

Furthermore, qualitative data analysis techniques, including thematic analysis, were employed to interpret qualitative data obtained from interviews, open-ended survey questions, and textual data from documents and reports. Through thematic analysis, recurring patterns, themes, and insights related to the effectiveness and challenges of utilizing various tools. This qualitative analysis complemented the quantitative analysis by providing nuanced understandings and contextual insights into the factors influencing Students' Performance. By triangulating both quantitative and qualitative data, this study aims to provide a comprehensive and robust analysis of the influence of different tools on the performance secondary students in Rwanda. The investigation included regression analysis:

$$Y = \mu + \alpha + \beta_1 X_1 + \dots \quad (2)$$

Y= Dependent variable – Students' Performance as expressed

X₁ = Planning and Scheduling

4.0 Results and Findings

4.1 Findings on Planning and Scheduling

The descriptive statistics on planning and scheduling in this study provide an in-depth analysis of respondents' views regarding the role of these project management practices in enhancing secondary school students' performance. Table 5 presents various statements related to planning and scheduling, with responses categorized into five levels: Strongly Disagree (SD), Disagree (D), Not Sure (NS), Agree (A), and Strongly Agree (SA). The mean and standard deviation values offer a quantitative summary of the data, reflecting the overall agreement or disagreement with each statement and the degree of variability in the respondents' opinions. These statistics help to highlight the extent to which planning and scheduling are perceived as influential in driving student success in Rwandan secondary schools.

Table 5: Respondents views on Planning and Scheduling

Statement on Planning and Scheduling			SD	D	NS	A	SA	Mean	Std Dev.
Teachers' lesson planning positively affects students' understanding of the material.			2.2%	6.5%	9.8%	35.9%	45.7%	4.16	.998
Scheduling regular study sessions helps students retain information better.			2.2%	2.2%	8.7%	33.7%	53.3%	4.34	.893

Clear and structured schedules reduce student stress and anxiety.	3.3%	3.3%	2.2%	41.3%	50.0%	4.32	.925
School-wide planning and scheduling initiatives enhance the learning environment.	0.0%	2.2%	6.5%	37.0%	54.3%	4.43	.716
The use of planners and schedules is encouraged and supported by the school administration.	0.0%	1.1%	5.4%	23.9%	69.6%	4.62	.644
Regular reviews and adjustments to schedules improve student performance.	0.0%	2.2%	8.7%	26.1%	63.0%	4.50	.749
Composite mean						4.40	

Source: **Primary data, (2024).**

Table 5 presents respondents' views on Planning and Scheduling, highlighting their perceptions of its impact on students' learning. The first statement, "Teachers' lesson planning positively affects students' understanding of the material," received a mean score of 4.16 with a standard deviation of 0.998. This indicates a general agreement among respondents, as 81.6% of them rated the statement positively (Agree or Strongly Agree). This finding aligns with existing literature that emphasizes the critical role of lesson planning in enhancing students' comprehension and retention (Niyonkuru & Imanishimwe, 2019). The relatively high standard deviation suggests some variability in responses, but the overall trend reflects a consensus on the importance of structured lesson planning.

The second statement, "Scheduling regular study sessions helps students retain information better," garnered a mean score of 4.34 and a standard deviation of 0.893, further illustrating strong support for effective scheduling practices. Approximately 86.7% of respondents agreed or strongly agreed with this statement. This finding is consistent with research suggesting that systematic study schedules can significantly enhance information retention and academic performance (Munyaneza & Rugwizangoga, 2021). The lower standard deviation indicates a more uniform response, highlighting a shared belief in the efficacy of regular study sessions in improving student outcomes.

Respondents also expressed strong agreement with the statement "The use of planners and schedules is encouraged and supported by the school administration," which had the highest mean score of 4.62 and the lowest standard deviation of 0.644. A notable 93.5% of participants agreed or strongly agreed with this assertion, reinforcing the idea that administrative support for planning is crucial for its successful implementation (Munyaneza et al., 2023). Other statements, such as "Regular reviews and adjustments to schedules improve student performance" and "Clear and structured schedules reduce student stress and anxiety," also received positive ratings, with means of 4.50 and 4.32, respectively. The composite mean of 4.40 suggests an overall favorable view of

planning and scheduling practices, reflecting their recognized importance in enhancing the educational experience (Niyonzima, 2020).

5.0 Conclusions of the study

In conclusion, the discussion emphasizes the critical role of planning and scheduling in enhancing project management practices within educational settings. Effective planning ensures that resources are allocated efficiently, timelines are adhered to, and objectives are clearly defined, which collectively contribute to improved academic performance and student engagement. The insights gathered from the interviews highlight that while some schools have made strides in implementing structured planning processes, challenges remain, including insufficient training for educators and limited collaboration among stakeholders. Addressing these challenges through targeted professional development and fostering a collaborative culture can significantly enhance project management outcomes. Ultimately, integrating robust planning and scheduling practices into the educational framework is essential for creating an environment conducive to successful learning experiences and achieving desired academic outcomes.

5.1 Recommendations of the study

Based on the findings of this study, it is recommended that public secondary schools in Gasabo District enhance their focus on effective planning and scheduling to improve student performance. Schools should develop structured time management strategies that ensure students allocate sufficient time for academic tasks while balancing extracurricular activities. Additionally, training programs for teachers and administrators on scope definition and goal achievement can further optimize the learning environment. It is also recommended that schools engage key stakeholders—including parents and community members—in the planning process to ensure alignment with student needs and enhance overall stakeholder satisfaction. Finally, further research should explore the long-term effects of improved planning and scheduling on academic outcomes across different regions in Rwanda.

5.2 Suggestions for Further Studies

Further studies on project management in secondary education should explore the longitudinal effects of resource allocation on student performance and engagement over time. Research could focus on how different resource allocation strategies influence specific academic outcomes, such as test scores and graduation rates, while also examining the impact on students' soft skills, like teamwork and problem-solving abilities. Additionally, qualitative studies that involve interviews and focus groups with students, teachers, and administrators can provide deeper insights into the challenges and successes of resource management in project-based learning environments. It would also be beneficial to investigate the role of technology in enhancing resource allocation and project management practices, including how digital tools can streamline planning, execution, and evaluation processes. Finally, comparative studies across various regions or countries could highlight best practices and innovative approaches to project management in education, providing

a broader context for understanding how resource allocation impacts learning experiences globally.

6.0 References

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