

The Effect of participatory budget formulation on learners' academic performance in government-aided primary schools in Kitagwenda District. A cross-sectional study.

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Abstract.

Background

Learners' academic performance in government-aided primary schools remains a global concern, with persistent learning deficits, unequal resource allocation, and varying pass rates observed across countries. This study assesses the effect of participatory budget formulation on learners' academic performance in government-aided primary schools in Kitagwenda District.

Methodology.

A descriptive cross-sectional survey design with a mixed methods approach was employed. Respondents were sampled using purposive and systematic random sampling techniques. Data were collected using questionnaires, interview guides, and documentary review checklists. Quantitative data were analyzed using SPSS version 20.0

Results.

Majority 210 (64.0%) of the participants were male, 95 (28.9%) had between 1 and 3 years of service, Participatory budget formulation had a moderate to strong positive correlation with all three academic performance indicators: end of term examination scores ($r = 0.563$, $p < 0.01$), grade progression rate ($r = 0.551$, $p < 0.01$), and PLE examination grades ($r = 0.604$, $p < 0.01$). Regression analysis showed that Participatory Budget Formulation has a positive coefficient of 0.312, meaning that a one-unit increase in formulation is associated with a 0.312-unit increase in academic performance, with a moderate effect size ($\beta = 0.321$) and high significance.

Conclusion.

Participatory budget formulation plays a crucial role in enhancing learners' academic performance in government-aided primary schools.

Recommendation.

School administration should institutionalize participatory budgeting practices by ensuring the consistent involvement of all stakeholders, including teachers, parents, finance committees, and student leaders, throughout the stages of budget formulation.

Keywords: *Participatory budget formulation, Academic performance, Learners' performance, Government-aided primary schools, Kitagwenda District.*

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Background.

The district education office records indicate a consistent pattern of underperformance well below the national average (Uganda National Examinations Board, 2024). Challenges contributing to this trend include inadequate infrastructure, insufficient learning materials, and weak parental involvement in budget decisions (Namara, 2021; Ahimbisibwe, 2020). Participatory budgeting (PB), a democratic process that engages community members, including parents, teachers, and learners, in public budget allocation, has been recognized globally for promoting transparency, accountability, and community ownership of resources (Wampler & Hartz-Karp, 2012; Cabannes, 2015).

Originating in Porto Alegre, Brazil, PB has the potential to empower school communities to identify and prioritize needs, thus enhancing resource allocation and improving academic outcomes (Baiochi & Ganuza, 2017). Learners' academic performance refers to the measurable outcomes of students' educational achievements, typically assessed through grades, examination scores, and mastery of curriculum objectives. It reflects how well learners acquire knowledge, skills, and competencies within a given academic period and is often used as an indicator of the effectiveness of teaching, learning environments, and educational policies (UNESCO, 2022). Key indicators of learners' academic performance include end of term

examination scores, which assess learners' understanding and progress during each term; grade progression rate, which measures the proportion of learners promoted to the next grade level at the end of the academic year; and Primary Leaving Examination (PLE) grades, which represent standardized national assessment results at the conclusion of primary education (Uganda National Examinations Board, 2024). These metrics collectively provide a comprehensive picture of learners' academic success and are critical for evaluating educational outcomes in government-aided primary schools. In Uganda, although school management committees and parent-teacher associations facilitate stakeholder involvement, their influence on budgeting decisions varies widely across districts (Kizito, 2022; Namara, 2021). While some districts, such as Mukono and Masaka, report improvements in academic performance linked to increased community participation (Kizito, 2022), Kitagwenda District shows limited evidence of PB's role despite ongoing challenges (Kitagwenda District Education Report, 2024). Therefore, this study sought to examine the effects of participatory budget formulation on learners' academic performance in government-aided primary schools in Kitagwenda District.

Methodology. Research Design.

The study employed a descriptive cross-sectional survey design with a mixed methods approach. The descriptive cross-sectional design involves collecting data at a single point in time to describe characteristics of a population or phenomenon (Creswell, 2014). It is particularly useful for

assessing the current status and relationships among variables without manipulating the study environment. The mixed methods approach combines both quantitative and qualitative data collection and analysis techniques, allowing for a more comprehensive understanding of the research problem by integrating numerical data with rich, contextual insights (Johnson & Onwuegbuzie, 2004). This design enabled the study to capture both measurable aspects of participatory budgeting and learners' academic performance, as well as stakeholders' perceptions and experiences regarding the budgeting processes.

Study Population.

In this study, the study population consisted of 415 individuals from sixty nine (69) primary schools in Kitagwenda district. These included the District Education Officer, Headteachers, School Staff Finance Committee (SSFC) chairpersons, Parent-Teacher Association (PTA) Chairpersons, School Management Committee (SMC) Chairpersons, and Student Leaders. These stakeholders were selected because they directly influence the budgeting processes and learners' academic outcomes in government-aided primary schools within the district (Best & Kahn, 2006; Creswell, 2014).

Sample Size

For this study, a sample size of 335 respondents from fifty-eight primary schools in Kitagwenda district was determined using Krejcie and Morgan's (1970) sample size determination table.

Table 1: Study Population, Sample Size, and Sampling Techniques.

Category	Population	Sample Size	Sampling Technique
District Education Officer	01	01	Purposive sampling
Headteachers	69	58	Systematic Random Sampling
School Staff Finance Committee chairperson	69	58	Systematic Random Sampling
PTA Chairpersons	69	58	Systematic Random Sampling
SMC Chairpersons	69	58	Systematic Random Sampling
Student leaders	138	102	Systematic Random Sampling
Total	415	335	

Sampling Techniques.

In this study, the following sampling techniques were applied:

Purposive Sampling

This method was used to select the District Education Officer because of their central role in overseeing education policies, budgeting processes, and decision-making within the district. The choice was based on their specialized knowledge, experience, and strategic position, which were

critical for providing in-depth insights into the participatory budgeting process and its influence on learners' academic performance.

Systematic Random Sampling.

In this study, it was used to select Headteachers, School Staff Finance Committee (SSFC) Chairpersons, Parent-Teacher Association (PTA) Chairpersons, School Management Committee (SMC) Chairpersons, and Student Leaders. For each category, a complete list of individuals

was compiled, a random starting point was chosen, and from this point, every k th individual was selected until the required sample size was reached. This approach ensured that every individual within each category had an equal and known chance of being selected, thereby enhancing the representativeness of the sample while maintaining randomness in the selection process.

Data Collection Methods

Questionnaire Method.

Structured questionnaires containing both closed-ended and a few open-ended questions were administered to Headteachers, School Staff Finance Committee (SSFC) Chairpersons, Parent-Teacher Association (PTA) Chairpersons, School Management Committee (SMC) Chairpersons, and Student Leaders. This method was chosen because it allowed for the collection of standardized data from a large number of respondents efficiently, while also enabling respondents to answer at their convenience.

Documentary Review Method.

Documentary review was used to collect data from secondary sources such as school financial records, budget reports, academic performance reports, meeting minutes, and relevant policy documents. This method provided historical and contextual information, allowing for triangulation and validation of data obtained through questionnaires and interviews.

Data Collection Instruments.

Questionnaire.

A structured questionnaire with both closed-ended and a few open-ended questions was designed to collect quantitative and qualitative data from Headteachers, School Staff Finance Committee (SSFC) Chairpersons, Parent-Teacher Association (PTA) Chairpersons, School Management Committee (SMC) Chairpersons, and Student Leaders. The instrument was chosen for its ability to capture standardized responses from a large number of respondents efficiently and objectively.

Documentary Review Checklist.

A documentary review checklist was prepared to guide the systematic collection of data from secondary sources such as budget reports, financial records, academic performance reports, meeting minutes, and relevant policy documents. This instrument ensured that all necessary documents were reviewed consistently to provide contextual and historical data for triangulation.

Data Quality Control.

Validity.

Content validity was used to ensure that the data collection instruments adequately covered all aspects of the study

variables. Content validity refers to the degree to which the items in an instrument represent the entire range of the concept being measured (Mugenda & Mugenda, 2003). To establish content validity, the researcher presented the draft questionnaire, interview guide, and documentary review checklist to a panel of three experts in education management and research methodology. The experts assessed each item for its relevance, clarity, simplicity, and comprehensiveness in relation to the study objectives. Each item was rated on a binary scale as either 1 (relevant) or 0 (not relevant).

The Content Validity Index (CVI) was then computed using the formula:

For the 32-item questionnaire in this study:

Number of items rated as relevant by experts = 29

Total number of items = 32

According to Amin (2005), a CVI of 0.70 or above is considered acceptable for research instruments. Therefore, the obtained CVI of 0.91 indicated that the instrument had high content validity and was suitable for data collection.

Reliability.

In this study, the test-retest method was used to assess the reliability of the research instruments. The test-retest method involves administering the same instrument to the same group of respondents on two separate occasions, under similar conditions, and then comparing the results to determine the degree of consistency (Creswell, 2014). The procedure for establishing reliability in this study involved first administering the questionnaire to a sample of 20 respondents, who were not part of the main study population, but from schools with similar characteristics to those in the actual study. After a period of two weeks, the same questionnaire was administered again to the same respondents under similar conditions. The scores from the first and second administrations were then compared using Pearson's Product-Moment Correlation Coefficient (r), yielding a reliability coefficient of 0.82, which, according to Amin (2005), exceeds the acceptable threshold of 0.70 for social science research instruments. This high reliability score confirmed that the questionnaire consistently measured the intended variables and could therefore be confidently used in the main study.

Procedure of Data Collection

After approval of the research proposal by the research supervisor, the proposal was submitted to the Bishop Stuart University Research Ethics Committee (BUS-REC) for ethical review and approval. Upon clearance, the researcher was issued an official ethical approval letter authorizing fieldwork. To access the respondents, the researcher first obtained an introductory letter from the university, which was presented to the District Education Officer (DEO) to seek permission to conduct the study in government-aided

primary schools in Kitagwenda District. The DEO provided an authorization letter addressed to the respective Headteachers and relevant school committees. The researcher then visited each selected school, introduced the study to the school authorities, and explained its purpose, procedures, and ethical considerations to the potential respondents. Written informed consent was obtained from all participants before data collection commenced, ensuring voluntary participation and confidentiality throughout the process.

Data Analysis

Quantitative Data Analysis

Quantitative data collected through questionnaires were coded and entered into the Statistical Package for Social Sciences (SPSS) version 20.0. Descriptive statistics such as frequencies, percentages, means, and standard deviations were generated to summarize respondents' characteristics

and their perceptions regarding participatory budgeting and academic performance. Inferential statistics, including Pearson's correlation and linear regression analysis, were conducted to assess the relationships between variables and test hypotheses at a 0.05 significance level (Creswell, 2014; Kothari, 2004).

Results.

Response Rate.

This section presents the response rates for both quantitative and qualitative data collection methods used in the study. A total of 335 respondents were targeted. Questionnaires were distributed to 335 respondents, of which 328 were duly completed and returned, representing a response rate of 98.2%. Additionally, one interview with the District Education Officer was scheduled and successfully conducted, yielding a 100% response rate for qualitative data.

Table 2: Response Rate of the Study

Data Collection Method	Scheduled	Conducted/Returned	Percentage (%)
Questionnaires	335	328	98.2

Table 2 shows the response rate for the data collection methods used in the study. Regarding questionnaires, a total of 334 questionnaires were distributed to various respondents involved in the study, and 328 were duly completed and returned. This reflects a high questionnaire response rate of 98.2%, indicating strong participation and providing reliable data for the study analysis. The minimal

non-response (6 questionnaires not returned) suggests effective engagement with the study participants.

Demographic Characteristics of Respondents.

This section describes the demographic profile of respondents, including their category, gender, and length of service as headteachers.

Table 3: Demographic Characteristics of Respondents

Demographic Variable	Frequency	Percentage (%)
Category of Respondents		
District Education Officer	1	0.3
Headteachers	58	17.7
School Staff Finance Committee Chairperson	54	16.5
PTA Chairpersons	56	17.1
SMC Chairpersons	57	17.4
Student Leaders	102	31.1
Total	328	100
Gender		
Male	210	64.0
Female	118	36.0
Total	328	100
Length of Service as Headteacher		
Less than 1 year	40	12.2
1–3 years	95	28.9
4–6 years	96	29.3
More than 6 years	97	29.6
Total	328	100

Table 3 presents the distribution of the 328 respondents according to their category, gender, and length of service as

headteachers. Regarding the category of respondents, the largest group was Student Leaders, who accounted for 102

(31.1%). This was followed by Headteachers with 58 (17.7%), School Staff Finance Committee Chairpersons with 54 (16.5%), PTA Chairpersons with 56 (17.1%), and SMC Chairpersons with 57 (17.4%). The District Education Officer was represented by a single individual (0.3%). This distribution shows that the study captured a broad representation of stakeholders involved in participatory budgeting in government-aided primary schools. In terms of gender, 210 (64.0%) were male, while 118 (36.0%) were female. This indicates a higher participation of males compared to females among the study participants, which could reflect the gender composition typical in leadership and decision-making roles within the educational sector. Regarding the length of service among headteachers, there

was a fairly even distribution across experience levels. Specifically, 40 (12.2%) had served for less than one year, 95 (28.9%) had between 1 and 3 years of service, 96 (29.3%) had served between 4 and 6 years, and 97 (29.6%) had served for more than 6 years. This variety in experience provides a balanced perspective on the participatory budgeting processes from both relatively new and more seasoned headteachers. The demographic characteristics suggest that the study gathered data from a diverse and representative group of participants, which enhances the reliability and generalizability of the findings related to participatory budgeting and learners' academic performance.

Figure 1: Pass Rates in Kitagwenda District (2020-2024).

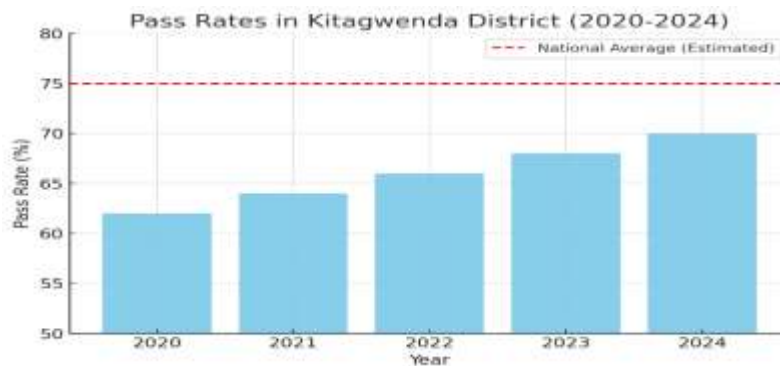


Figure 1 shows the pass rates for the district from 2020 to 2024, revealing a consistent pattern of performance below the national average throughout the five years. The pass rate increased gradually from 62% in 2020 to 70% in 2024, indicating a slow but steady improvement. Despite this marginal increase, the results remain below the national benchmark, highlighting persistent challenges that continue to affect students' academic achievement. This trend suggests that while some progress has been made, more targeted interventions and resources are needed to address

the underlying factors limiting performance and to help the district reach or surpass the national average.

Effect of Participatory Budget Formulation on Learners' Academic Performance.

Responses were collected using a seven-item questionnaire rated on a five-point Likert scale ranging from Strongly Agree (SA) to Strongly Disagree (SD). Frequencies, percentages, means, and standard deviations.

Table 4: Responses on Participatory Budget Formulation on Learners' Academic Performance

Statement	SA (n, %)	A (n, %)	N (n, %)	D (n, %)	SD (n, %)	Mean	SD
1. Involving stakeholders improves the allocation of resources for academic activities, which leads to improved end-of-term examination scores	156 (47.6%)	114 (34.8%)	30 (9.1%)	15 (4.6%)	13 (4.0%)	4.23	0.91
2. Budget priorities are aligned with the needs that enhance learners' academic performance, resulting in smooth grade progression	148 (45.1%)	118 (35.9%)	29 (8.8%)	20 (6.1%)	13 (4.1%)	4.17	0.97

3. Participatory budget formulation positively affects the availability of learning materials, thereby boosting end-of-term examination performance	166 (50.6%)	112 (34.1%)	20 (6.1%)	15 (4.6%)	15 (4.6%)	4.25	0.98
4. Stakeholders' views are effectively considered during budget formulation, leading to targeted interventions that improve PLE grades.	142 (43.3%)	125 (38.1%)	34 (10.4%)	17 (5.2%)	10 (3.0%)	4.18	0.87
5. Budget formulation meetings are well attended by all relevant stakeholders, which supports better decision-making for increased grade progression	151 (46.0%)	112 (34.1%)	29 (8.8%)	23 (7.0%)	13 (4.0%)	4.12	1.01
6. The budget formulation process helps in identifying academic resource gaps, enabling solutions that enhance PLE performance.	160 (48.8%)	108 (33.0%)	26 (7.9%)	20 (6.1%)	14 (4.3%)	4.22	0.94
7. Participatory budgeting encourages transparency in the allocation of school funds, ensuring resources are directed towards areas that improve grade progression	171 (52.1%)	105 (32.0%)	23 (7.0%)	16 (4.9%)	13 (4.0%)	4.27	0.89

Table 4 presents respondents' views on participatory budget formulation and its effect on learners' academic performance. For the statement "Involving stakeholders improves the allocation of resources for academic activities, which leads to improved end-of-term examination scores," 156 (47.6%) strongly agreed, 114 (34.8%) agreed, 30 (9.1%) were neutral, 15 (4.6%) disagreed, and 13 (4.0%) strongly disagreed.

Regarding "Budget priorities are aligned with the needs that enhance learners' academic performance, resulting in smooth grade progression," 148 (45.1%) strongly agreed, 118 (35.9%) agreed, 29 (8.8%) were neutral, 20 (6.1%) disagreed, and 13 (4.1%) strongly disagreed.

For "Participatory budget formulation positively affects the availability of learning materials, thereby boosting end-of-term examination performance," 166 (50.6%) strongly agreed, 112 (34.1%) agreed, 20 (6.1%) were neutral, 15 (4.6%) disagreed, and 15 (4.6%) strongly disagreed.

On "Stakeholders' views are effectively considered during budget formulation, leading to targeted interventions that improve PLE grades," 142 (43.3%) strongly agreed, 125 (38.1%) agreed, 34 (10.4%) were neutral, 17 (5.2%) disagreed, and 10 (3.0%) strongly disagreed.

For "Budget formulation meetings are well attended by all relevant stakeholders, which supports better decision-making for increased grade progression," 151 (46.0%) strongly agreed, 112 (34.1%) agreed, 29 (8.8%) were neutral, 23 (7.0%) disagreed, and 13 (4.0%) strongly disagreed.

Regarding "The budget formulation process helps in identifying academic resource gaps, enabling solutions that enhance PLE performance," 160 (48.8%) strongly agreed,

108 (33.0%) agreed, 26 (7.9%) were neutral, 20 (6.1%) disagreed, and 14 (4.3%) strongly disagreed.

Lastly, for "Participatory budgeting encourages transparency in the allocation of school funds, ensuring resources are directed towards areas that improve grade progression," 171 (52.1%) strongly agreed, 105 (32.0%) agreed, 23 (7.0%) were neutral, 16 (4.9%) disagreed, and 13 (4.0%) strongly disagreed.

The mean scores ranged between 4.12 and 4.27, indicating strong agreement across statements, with standard deviations from 0.87 to 1.01, showing moderate response variation. These results suggest a broad consensus that participatory budget formulation positively influences resource allocation and transparency, contributing to improved learners' academic performance.

During interviews, respondents revealed that participatory budgeting in Kitagwenda District is practiced through inclusive meetings involving various stakeholders such as headteachers, PTA members, SMCs, and sometimes student representatives. This process ensures diverse views are heard and reflected in budget priorities, fostering a sense of ownership that positively impacts learners' academic performance. Challenges such as limited stakeholder capacity and coordination difficulties sometimes hinder meaningful participation. Stakeholder inputs are systematically gathered and incorporated into budget formulation, helping to align resources with actual school needs and promote transparency.

Learners' Academic Performance

This section highlights respondents' perceptions of learners' academic performance based on various indicators, including examination scores, progression rates, and attendance. Seven statements were rated and analyzed.

Table 5: Responses on Learners' Academic Performance

Statement	SA (n, %)	A (n, %)	N (n, %)	D (n, %)	SD (n, %)	Mean	SD
1. End-of-term examination scores have improved over recent years, indicating enhanced learners' academic performance.	151 (46.0%)	114 (34.8%)	29 (8.8%)	20 (6.1%)	14 (4.3%)	4.15	0.96
2. There is a high-grade progression rate among learners, showing consistent academic achievement	144 (43.9%)	111 (33.8%)	33 (10.1%)	23 (7.0%)	17 (5.2%)	4.08	0.98
3. The Primary Leaving Examination (PLE) grades have shown positive trends, reflecting improved overall academic outcomes.	157 (47.9%)	108 (33.0%)	29 (8.8%)	19 (5.8%)	15 (4.6%)	4.18	0.93
4. Learners' attendance rates positively influence academic performance, contributing to higher exam scores and successful grade progression.	164 (50.0%)	99 (30.2%)	33 (10.1%)	16 (4.9%)	16 (4.9%)	4.22	0.94
5. The school has effective remedial programs for learners who perform poorly, which help to improve end-of-term results and PLE grades.	148 (45.1%)	108 (33.0%)	36 (11.0%)	20 (6.1%)	16 (4.9%)	4.12	0.96
6. Teaching methods in the school support improved academic performance by enhancing learners' understanding and examination outcomes.	160 (48.8%)	105 (32.0%)	29 (8.8%)	20 (6.1%)	14 (4.3%)	4.20	0.91
7. Parental involvement has increased and positively impacts learners' academic outcomes, including higher term scores and better grade progression.	154 (46.9%)	108 (33.0%)	33 (10.1%)	20 (6.1%)	13 (4.0%)	4.16	0.91

Table 5 summarizes respondents' views on various indicators of learners' academic performance in government-aided primary schools. For the statement "End-of-term examination scores have improved over recent years, indicating enhanced learners' academic performance," 151 (46.0%) strongly agreed, 114 (34.8%) agreed, 29 (8.8%) were neutral, 20 (6.1%) disagreed, and 14 (4.3%) strongly disagreed. Regarding "There is a high-grade progression rate among learners, showing consistent academic achievement," 144 (43.9%) strongly agreed, 111 (33.8%) agreed, 33 (10.1%) were neutral, 23 (7.0%) disagreed, and 17 (5.2%) strongly disagreed.

For "The Primary Leaving Examination (PLE) grades have shown positive trends, reflecting improved overall academic outcomes," 157 (47.9%) strongly agreed, 108 (33.0%) agreed, 29 (8.8%) were neutral, 19 (5.8%) disagreed, and 15 (4.6%) strongly disagreed.

On "Learners' attendance rates positively influence academic performance, contributing to higher exam scores and successful grade progression," 164 (50.0%) strongly agreed, 99 (30.2%) agreed, 33 (10.1%) were neutral, 16 (4.9%) disagreed, and 16 (4.9%) strongly disagreed.

Regarding "The school has effective remedial programs for learners who perform poorly, which help to improve end-of-term results and PLE grades," 148 (45.1%) strongly agreed, 108 (33.0%) agreed, 36 (11.0%) were neutral, 20 (6.1%) disagreed, and 16 (4.9%) strongly disagreed.

For "Teaching methods in the school support improved academic performance by enhancing learners' understanding and examination outcomes," 160 (48.8%) strongly agreed, 105 (32.0%) agreed, 29 (8.8%) were neutral, 20 (6.1%) disagreed, and 14 (4.3%) strongly disagreed.

Lastly, on "Parental involvement has increased and positively impacts learners' academic outcomes, including higher term scores and better grade progression," 154 (46.9%) strongly agreed, 108 (33.0%) agreed, 33 (10.1%) were neutral, 20 (6.1%) disagreed, and 13 (4.0%) strongly disagreed.

Mean scores ranged from 4.08 to 4.22, with standard deviations between 0.91 and 0.98, showing general agreement among respondents that academic performance indicators such as examination scores, grade progression, and PLE results have improved. Additionally, attendance,

remedial programs, teaching methods, and parental involvement were perceived as important contributors to academic success.

During interviews, respondents revealed that participatory budgeting has positively influenced learners' academic performance by improving resource allocation and accountability. Academic improvements are assessed through examination scores, grade progression, and attendance rates, all of which show positive trends linked to participatory budgeting. To further enhance its effectiveness, respondents recommended continuous

capacity building for stakeholders, timely release of funds, and clearer guidelines to support meaningful participation and better academic outcomes.

Correlation Analysis.

This section presents the Pearson correlation coefficients assessing the relationships between the independent variable, participatory budget formulation, and the dependent variable, learners' academic performance. Learners' academic performance is measured through end-of-term examination scores, grade progression rate, and Primary Leaving Examination (PLE) grades.

Table 6: Correlation between Participatory Budgeting Components and Learners' Academic Performance Indicators (N = 328)

Variable	End of Term Exam Scores	Grade Progression Rate	PLE Grades
Participatory Budget Formulation			
• Pearson Correlation	0.563 **	0.551 **	0.604 **
• Sig. (2-tailed)	0.000	0.000	0.000
• N	328	328	328

*Notes: ** Correlation is significant at the 0.01 level (2-tailed).*

The correlation analysis in Table 6 reveals that Participatory Budget Formulation shows a moderate to strong positive correlation with all three academic performance indicators: end-of-term examination scores ($r = 0.563$, $p < 0.01$), grade progression rate ($r = 0.551$, $p < 0.01$), and PLE examination grades ($r = 0.604$, $p < 0.01$). This indicates that active involvement in budget formulation is associated with better academic outcomes.

Regression Analysis

This section presents the results of multiple linear regression analysis conducted to determine the predictive effect of participatory budget formulation on learners' academic performance, measured by end-of-term examination scores, grade progression rate, and PLE examination grades.

Table 7: Regression Results for Predictive Effect of Participatory Budgeting on Learners' Academic Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F-value	Sig. (p-value)
1	0.742	0.551	0.547	0.382	123.45	0.000

Table 7 presents the summary of the regression model that examines the combined effect of Participatory Budget Formulation on learners' academic performance. The multiple correlation coefficient (R) is 0.742, indicating a strong positive relationship between these predictors and the academic performance of learners. This suggests that the participatory budgeting components collectively have a substantial association with academic outcomes.

The R Square value of 0.551 reveals that approximately 55.1% of the variance in learners' academic performance is explained by the three budgeting components included in the model. This shows that more than half of the differences in academic performance among learners can be attributed to the extent of participation in budget formulation, implementation, and monitoring within schools.

Furthermore, the Adjusted R Square of 0.547, which accounts for the number of predictors in the model, remains high and close to the R Square value. This confirms that the model has good explanatory power even after adjusting for potential overfitting, strengthening the reliability of the results.

The Standard Error of the Estimate is 0.382, indicating the average amount by which the observed academic performance scores deviate from the predicted values by the regression model. A relatively small standard error suggests a good fit of the model to the data. These results demonstrate that participatory budgeting practices significantly contribute to explaining learners' academic performance in government-aided primary schools in Kitagwenda District, highlighting the importance of involving stakeholders in school budgeting processes.

Table 8: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	61.234	3	20.411	139.87	0.000
Residual	49.762	324	0.154		
Total	110.996	327			

Table 8 presents the ANOVA results for the regression model examining the effect of Participatory Budget Formulation on learners' academic performance. The table shows that the regression sum of squares is 61.234 with 3 degrees of freedom, while the residual sum of squares is 49.762 with 324 degrees of freedom.

The mean square for the regression is 20.411, which is the sum of squares divided by its degrees of freedom. The residual mean square, representing unexplained variance, is 0.154.

The calculated F-value is 139.87, which is the ratio of the regression mean square to the residual mean square. This high F-value indicates that the regression model provides a

significantly better fit to the data than a model with no predictors.

The significance value (Sig.) is 0.000, which is less than the conventional threshold of 0.05. This means that the overall regression model is statistically significant, confirming that participatory budgeting components collectively predict learners' academic performance with a very high level of confidence.

In summary, the ANOVA results support the conclusion that the regression model including participatory budgeting variables significantly explains variations in learners' academic performance in government-aided primary schools in Kitagwenda District.

Table 9: Coefficients

Predictor	B	Std. Error	Beta	t	Sig.
(Constant)	1.023	0.212		4.825	0.000
Participatory Budget Formulation	0.312	0.047	0.321	6.638	0.000

Table 9 shows the regression coefficients for the predictors in the model examining the effect of participatory budgeting components on learners' academic performance. The constant (intercept) has a value of 1.023, which represents the predicted academic performance score when all predictors are zero. This intercept is statistically significant with a t-value of 4.825 and a p-value of 0.000.

Looking at the independent variables, Participatory Budget Formulation has an unstandardized coefficient (B) of 0.312. This means that for every one-unit increase in participatory budget formulation, learners' academic performance increases by 0.312 units, holding other variables constant. The standardized beta coefficient of 0.321 indicates a positive and moderate effect size. This predictor is highly significant with a t-value of 6.638 and a p-value of 0.000

Discussion of Findings

Effect of Participatory Budget Formulation on Learners' Academic Performance

The study findings revealed that participatory budget formulation significantly contributes to improving resource allocation for academic activities in government-aided primary schools. A majority of respondents agreed that involving stakeholders in the budget formulation process ensures that resources are allocated effectively to meet the academic needs of learners. This collaborative approach allows budget priorities to be aligned closely with the specific needs that enhance learners' academic performance. These findings are supported by Fung (2006), who emphasized that inclusive participation in governance leads

to more effective decision-making and better outcomes. Similarly, Nabaho et al. (2018) found that stakeholder involvement in school budgeting results in more need-responsive resource allocation, which improves educational performance. Additionally, Arnstein (1969) highlighted that citizen participation in planning processes empowers communities and improves the relevance and fairness of resource distribution.

The study findings revealed that participatory budget formulation positively impacts the availability of learning materials. Respondents generally agreed that when stakeholders are involved, there is an increased availability of essential teaching and learning resources. Additionally, stakeholders' views are effectively considered during the budget formulation process, fostering a sense of inclusiveness and collective responsibility in financial planning. This aligns with the research of Saito and Atieno (2020), who showed that participatory budgeting enhances the adequacy of educational resources by reflecting local priorities. Olaniyan and Obadara (2019) also demonstrated that inclusive financial planning improves resource mobilization and allocation in schools. Furthermore, Bryson, Quick, Slotterback, and Crosby (2013) argued that stakeholder engagement in budgeting fosters collaborative problem-solving and shared accountability, leading to more effective educational investments.

The study findings revealed that budget formulation meetings are well attended by relevant stakeholders, facilitating the identification of academic resource gaps. This active participation enables schools to better recognize and address deficiencies that hinder academic progress.

Moreover, participatory budgeting encourages transparency in the allocation and use of school funds, building trust between school management and the wider school community. These findings align with the World Bank's (2017) assertion that transparency and community involvement in school financial management enhance accountability and resource utilization. Mwesigwa and Tumwine (2018) also found that transparent budgeting processes strengthen community trust and support, which are crucial for sustainable educational improvements. Additionally, Bovens, Goodin, and Schillemans (2014) emphasized that transparency and accountability mechanisms in public budgeting foster legitimacy and better outcomes in service delivery.

The findings suggest a strong consensus that participatory budget formulation enhances the fairness and transparency of resource allocation in schools, leading to improved academic performance among learners. The involvement of multiple stakeholders in the formulation process ensures that budgets reflect real needs and promote accountability, ultimately benefiting educational outcomes. This echoes Fung's (2015) participatory governance theory, which stresses the importance of inclusive decision-making for effective public management. Kabwama and Tumwesigye (2019) also demonstrated that participatory budgeting in education promotes equitable resource allocation and enhances student achievement. Additionally, Mansuri and Rao (2013) argued that participatory approaches in governance not only improve transparency but also empower communities to actively shape service delivery, thereby enhancing outcomes such as academic performance. The correlation analysis reveals statistically significant positive relationships between the components of participatory budgeting and learners' academic performance indicators in government-aided primary schools in Kitagwenda District, based on a robust sample size of 328. Participatory Budget Formulation shows a moderate to strong positive correlation with end-of-term examination scores ($r = 0.563$, $p < 0.01$), grade progression rate ($r = 0.551$, $p < 0.01$), and PLE examination grades ($r = 0.604$, $p < 0.01$), indicating that active involvement in budget formulation is associated with better academic outcomes. The regression coefficients reveal that participatory budgeting formulation has significant positive effects on learners' academic performance in government-aided primary schools in Kitagwenda District. The constant (intercept) of 1.023 is statistically significant, indicating the baseline academic performance when all predictors are zero. Participatory Budget Formulation has a positive coefficient of 0.312, meaning that a one-unit increase in formulation is associated with a 0.312-unit increase in academic performance, with a moderate effect size ($\beta = 0.321$) and high significance.

Conclusion.

The study concluded that participatory budget formulation plays a crucial role in enhancing learners' academic performance in government-aided primary schools.

Recommendation.

School administration should institutionalize participatory budgeting practices by ensuring the consistent involvement of all stakeholders, including teachers, parents, finance committees, and student leaders, throughout the stages of budget formulation. This will promote transparency, inclusivity, and effective resource management within schools.

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List of abbreviations.

DEO — District Education Officer
PTA — Parent-Teacher Association
SMC — School Management Committee
SSFC — School Staff Finance Committee
PLE — Primary Leaving Examination
SPSS — Statistical Package for Social Sciences
UPE — Universal Primary Education
NGO — Non-Governmental Organization
ANOVA—Analysis of Variance

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Conflict of interest.

There is no conflict of interest.

Availability of data.

Data used in this study are available upon request from the corresponding author.

The author's contribution.

EM designed the study, conducted data collection, cleaned and analyzed data, and drafted the manuscript, and DA and RB supervised all stages of the study from conceptualization of the topic to manuscript writing and submission.

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Ethical Considerations.

Before data collection commenced, ethical approval was obtained from the Bishop Stuart University Research Ethics Committee (BUS-REC). Permission was also sought from the District Education Officer and school authorities to access the respondents in government-aided primary schools in Kitagwenda District.

Informed Consent

Participants were fully informed about the purpose of the study, the procedures involved, and their rights, including the right to decline participation or withdraw at any point without penalty. Written informed consent was obtained from all respondents before data collection. To protect the privacy of participants, confidentiality and anonymity were strictly maintained by not recording any personal identifiers. Data collected were securely stored and used solely for research purposes. The researcher ensured that the data collection process was conducted respectfully and sensitively, avoiding any psychological, social, or physical harm to the participants.

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