

CONTRIBUTION OF USAID SOMA UMENYE TO THE PERFORMANCE OF LEARNERS OF KINYARWANDA LANGUAGE IN LOWER PRIMARY SCHOOLS. A CASE OF PUBLIC AND GOVERNMENT AIDED SCHOOLS OF MUSANZE DISTRICT, IN NORTHERN PROVINCE, RWANDA (2016/20230).

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Abstract

This study aimed at determining the contribution of usaid soma umenye to the performance of learners of kinyarwanda language in lower primary schools. To assess the contribution of providing trainings to teachers and school leaders to the performance of learners in Kinyarwanda language, to assess the contribution of learning and teaching materials provided to the performance of learners in Kinyarwanda language. The study used correlation research design in which it used both quantitative and qualitative data collection to collect data from 100 participants as a sample out of 824 study population. The sample was drawn from three (3) primary schools located in Muboya, Nkotsi and Kinigi Sectors of Musanze District. The data was gathered using questionnaire with a Likert scale with closed items and the interview guide was used to collect views from participant on how they think about materials provided, training and contribute to their learning outcomes in Kinyarwanda language in their respective schools. It is against this that the study described recommendations such as Integrate specific training modules on Kinyarwanda language instruction within the existing teacher training programs, implement regular formative and summative assessments to monitor students' progress in Kinyarwanda language proficiency and integrate specific training modules on Kinyarwanda language instruction within the existing teacher training programs.

Keywords: *Providing training, learning, and teaching materials, learners performance*

Education is one of the fundamental pillars of social and economic development for any country. As Confucius stated, investing in education is an investment in the future, and this statement holds true for both developed and developing countries. Many developed countries invest heavily in education and human capital to ensure sustainable economic growth and development. On the other hand, developing countries are striving to provide quality education to their citizens to promote social and economic development. In Rwanda, the government has invested significantly in education since the genocide of 1994. The government has partnered with various stakeholders to develop basic education and provide free education from primary to secondary school. However, despite these efforts, many pupils in primary upper levels are still unable to read simple passages of p2 Kinyarwanda text, which is a significant concern for the government. To address this issue, the Rwanda Education Board (REB) initiated the Soma Umenye project in collaboration with the United States

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Agency for International Development (USAID). The project aims to improve reading outcomes in Kinyarwanda for at least 1 million children in public and government-aided schools in Rwanda by the end of P3. Specifically, the project aims to ensure that at least 70% of P1-P3 students can read grade-level text with fluency and comprehension.

To address this issue, the Rwanda Education Board initiated the Soma Umenye project in collaboration with USAID. The project aims to improve reading outcomes in Kinyarwanda for at least 1 million children in public and government-aided schools in Rwanda by the end of P3. The success of the project will be measured by evaluating the improvement

Research Hypothesis

Training of teachers and school leaders has no positive contribution to the performance of learners in Kinyarwanda language in Musanze District, primary schools, and Learning and teaching materials provided have no positive contribution to the performance of learners in Kinyarwanda language in Musanze District, primary schools.

Theoretical review: In recent times, educational projects have become popular in the education sector. These projects are designed to enhance the quality of learning and teaching in schools. The aim of this theoretical review was to examine the contribution of educational projects to the performance of learners in lower primary. This review focused on one theories, namely the Social Learning Theory.

Social Learning Theory: Social Learning Theory (SLT) proposes that learning occurs through observation and modeling of others' behaviors, attitudes, and emotions. According to Bandura (1977), individuals learn by observing others and their environment. This theory suggests that learners can learn more effectively when they observe others performing tasks or activities. The concept of social learning has been applied in educational projects to enhance the learning experience of learners. Educational projects that use social learning theory as a basis for their design incorporate opportunities for learners to observe and learn from others. The learners are also provided with opportunities to collaborate with others in the learning process, which promotes social interaction and the exchange of ideas.

Empirical review: Contribution of trainings to teachers and school leaders to the performance of learners in lower primary school.

Education is a key driver of economic growth and development, and one of the most important components of education is the quality of teachers and school leaders. Research shows that well-trained teachers and school leaders are crucial to improving student learning outcomes, especially in lower primary school. In this literature review, we will examine the contribution of training to teachers and school leaders in improving the performance of learners in lower primary school.

Research has shown that training has a significant impact on the performance of teachers, and this, in turn, affects the performance of learners. In a study conducted by Ssewamala (2017) in Uganda, it was found

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that teacher training improved teacher knowledge and skills, resulting in better instructional practices and increased student performance. The study concluded that training was an effective way to improve the quality of education in lower primary school.

In a similar study conducted by Crouch and Pearce (2012) in South Africa, it was found that teacher training had a positive impact on learner performance in reading and mathematics. The study also found that the training had a long-term impact on the performance of learners, and the benefits were visible even after two years.

The contribution of training to teachers and school leaders cannot be overstated. Training has a positive impact on teacher knowledge, skills, instructional practices, school management, and teacher motivation. These factors, in turn, lead to improved student outcomes in lower primary school. Therefore, it is essential to invest in training teachers and school leaders to improve the quality of education in lower primary school. However, there is lack of research on contribution of provided trainings by USAID some unenye to the performance of students in lower primary.

Contribution providing teaching and learning materials to the performance of learners in lower primary school.

Providing teaching and learning materials is considered an essential component of primary education. The use of these materials is believed to enhance the quality of teaching and learning, leading to improved academic performance among learners. This literature review aims to explore the contribution of providing teaching and learning materials to the performance of learners in lower primary school. The review will examine relevant studies that have investigated the relationship between teaching and learning materials and academic performance.

Research has shown that the provision of teaching and learning materials positively affects academic performance among learners in lower primary school. According to a study by Kariuki (2018), the availability of teaching and learning materials in the classroom significantly contributes to learners' academic performance. The study found that learners who had access to teaching and learning materials performed better than those who did not have access to such materials.

Similarly, a study by Kilolo et al. (2020) found that the availability of teaching and learning materials had a significant positive effect on the academic performance of learners in lower primary school. The study found that learners who had access to teaching and learning materials had higher mean scores compared to those who did not have access to such materials. Moreover, a study by Mugo and Muthee (2019) found that the use of teaching and learning materials in teaching contributed significantly to the academic performance of learners in lower primary school. The study found that learners who were taught using teaching and learning materials had higher mean scores compared to those who were not taught using such materials.

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The reviewed studies consistently indicate that providing teaching and learning materials significantly contributes to the academic performance of learners in lower primary school. The studies suggest that the availability and use of teaching and learning materials positively influence learners' academic performance. However, there is no research have yet done on the contribution of providing teaching and learning material by USAID soma umenye to the performance of learners in lower primary.

Methodology

The researcher used correlation research design method. This comprises using questionnaire in collecting data from the respondents. In collecting data, questionnaires distributed to the concerned populations that carefully was chosen by the researcher. The researcher used a case study because it is an effective way of collecting data in a short period of time. As recommended by Kothari (1985), this method is effective since it is used to narrow down a very broad field of research into one easily researchable topic. The study was conducted in three (3) primary schools located in Muhoza , Nkotsi and Kinigi Sectors of Musanze District and the population of this study covered 824 people including school leaders, teachers, students. researcher utilized simple random and purposive sampling obtained by choosing elementary units in such a way that in each unit of the population has equal chance of being selected.

Findings

This section presents the findings of the study on two specific objectives addressed. Each objective, descriptive statistics (mean and standard deviation). Descriptive statistics on trainings provided to teachers and school leaders The researcher utilized descriptive statistics, specifically the mean and standard deviation, to gain insights into the level of agreement or disagreement among respondents regarding the training provided to teachers and school leaders in primary schools located in the Musanze district. These statistics provided valuable information on the overall perception of the training items.

Table 4.1: Descriptive statistics on trainings provided to teachers and school leaders

Statements	N	Min	Max	Mean	Std.
Teachers are getting trainings	100	3.00	5.00	3.8800	.72864
Headteacher and Director of studies are getting trainings	100	3.00	5.00	3.7200	.75318
Soma umenye helps the school to teach students kinyarwanda	100	3.00	5.00	4.6000	.51247
Students know to read Kinyarwanda	100	3.00	5.00	4.2200	.71887
the provision of trainings to teachers and school leaders contribute to the performance of learners in Kinyarwanda language.	100	4.00	5.00	4.6600	.47610
the performance of learners in Kinyarwanda language improved after providing trainings to teachers and school leaders.	100	4.00	5.00	4.6200	.48783
Without Soma umenye students couldn't know to read Kinyarwanda as per now.	100	2.00	5.00	4.4300	.65528
Overall	100				

Note: Strongly disagree [1] = Very low mean, disagree [1-2] =Low mean, Neutral [2-3] =Moderate mean, agree [3-4] =High mean, strongly agree [4-5] =Very high mean.

Source: Research data

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The findings from the table 4.5 on training provided to teachers and school leaders shows that Teachers are getting trainings with the mean rating is 3.8800, suggesting a relatively high level of agreement among the respondents and the standard deviation is 0.72864, indicating a moderate amount of variability in the responses.

Headteacher and Director of studies are getting trainings with the mean rating is 3.7200, implying a relatively high level of agreement and the standard deviation is 0.75318, suggesting a moderate amount of variability in the responses, Soma umenye helps the school to teach students Kinyarwanda with the mean rating is 4.6000, indicating a high level of agreement and the standard deviation is 0.51247, suggesting a relatively low amount of variability in the responses.

Students know to read Kinyarwanda with the mean rating is 4.2200, suggesting a high level of agreement and the standard deviation is 0.71887, indicating a moderate amount of variability in the responses, The provision of trainings to teachers and school leaders contribute to the performance of learners in Kinyarwanda language with the mean rating is 4.6600, indicating a very high level of agreement and the standard deviation is 0.47610, suggesting a relatively low amount of variability in the responses.

The performance of learners in Kinyarwanda language improved after providing trainings to teachers and school leaders with the mean rating is 4.6200, indicating a very high level of agreement and the standard deviation is 0.48783, suggesting a relatively low amount of variability in the responses, Without Soma umenye, students couldn't know to read Kinyarwanda as of now with the mean rating is 4.4300, suggesting a high level of agreement and the standard deviation is 0.65528, indicating a moderate amount of variability in the responses.

Overall, the respondents generally expressed a high level of agreement regarding the effectiveness of trainings for teachers and school leaders, the impact of Soma umenye on teaching Kinyarwanda and improving student performance, as well as the importance of Soma umenye in enabling students to read Kinyarwanda. The standard deviations indicate some variability in the responses, but generally, the mean ratings indicate a positive consensus.

Descriptive statistics on providing teaching and learning materials

The researcher utilized descriptive statistics, specifically the mean and standard deviation, to assess the level of agreement among respondents regarding the statements related to teaching and learning material. These statistics provided valuable insights into the extent to which the respondents agreed or disagreed with the provided statements.

Table 4.2: Descriptive statistics on providing teaching and learning materials

Statements	N	Min	Max	Mean	Std.
The school has library.	100	2.00	4.00	2.9100	.85393
The school has Kinyarwanda books for the students.	100	4.00	5.00	4.5900	.49431

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The Kinyarwanda books are enough proportional to the number of students.	100	2.00	5.00	3.9600	.97359
Soma umenye project provides books to the school.	100	3.00	5.00	4.5700	.57305
learning and teaching materials provided contribute to the performance of learners in Kinyarwanda language.	100	3.00	5.00	4.7000	.48200
the performance of learners in Kinyarwanda language improved after the provision of learning and teaching materials.	100	3.00	5.00	4.5900	.53362
Without the assistance of Soma umenye by providing books and other materials, students could not know how to read Kinyarwanda.	100	3.00	5.00	4.5100	.61126
Overall	100				

Note: Strongly disagree [1] = Very low mean, disagree [1-2] =Low mean, Neutral [2-3] =Moderate mean, agree [3-4] =High mean, strongly agree [4-5] =Very high mean.

Source: Research data

The table 4.1 shows the findings on teaching and learning materials which indicates that for the first statement "The school has a library," received an average score of 2.9100, with a moderate standard deviation of 0.85393. This suggests that respondents had varying opinions regarding the presence of a library in the school. "The school has Kinyarwanda books for the students," received a higher average score of 4.5900, with a relatively low standard deviation of 0.49431. This indicates that most respondents agreed that the school has an adequate supply of Kinyarwanda books. "The Kinyarwanda books are enough proportional to the number of students," received an average score of 3.9600, with a higher standard deviation of 0.97359. This suggests that opinions were more diverse regarding whether the number of books is sufficient for the number of students. The fourth, fifth, and sixth statements all received high average scores above 4.5000, indicating positive perceptions about the impact of learning and teaching materials on Kinyarwanda language performance. However, the standard deviations vary, indicating varying levels of agreement among the respondents. The final statement, "Without the assistance of Soma umenye by providing books and other materials, students could not know how to read Kinyarwanda," received an average score of 4.5100, with a relatively high standard deviation of 0.61126. This implies that opinions were somewhat divided on the necessity of Soma umenye's assistance in learning Kinyarwanda. Overall, this table provides insights into the perceptions of respondents regarding the availability of books and learning materials in a school, as well as their impact on students' performance in the Kinyarwanda language. The average scores and standard deviations help understand the level of agreement and variability in these perceptions.

Descriptive statistics on performance of learners in Kinyarwanda language.

The use of descriptive statistics in assessing learners' performance in Kinyarwanda involves measures like the mean and standard deviation. These statistical measures assist the researcher in understanding the level of agreement or disagreement among the respondents regarding the statements.

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Table 4.3: Descriptive statistics on performance of learners in Kinyarwanda language.

	N	Min.	Max.	Mean	Std. Deviation
The students are highly interested in learning.	100	3.00	5.00	4.4900	.64346
The students feel that Kinyarwanda will be important for their future.	100	2.00	5.00	4.3800	.82609
In this school, the students' performance is measured by the grades obtained in national exam.	100	2.00	5.00	4.4400	.72919
The students are interested in the Kinyarwanda subject that are doing.	100	2.00	5.00	4.5100	.71767
The Soma umenye program helps students to perform better.	100	3.00	5.00	4.5100	.62757
Academic performance in kinyarwanda language of this school is consistently improving.	100	2.00	5.00	4.3800	.86199
This school, students perform highly in district and national exam.	100	2.00	5.00	4.4000	.80403
Valid N (listwise)	100				

Note: Strongly disagree [1] = Very low mean, disagree [1-2] =Low mean, Neutral [2-3] =Moderate mean, agree [3-4] =High mean, strongly agree [4-5] =Very high mean.

Source: Research data

The table 4.2 provides descriptive statistics for various statements related to student interests, beliefs, and academic performance in the context of Kinyarwanda language learning. Let's analyze each statement and its corresponding statistics:

This indicates that, on average, the students have a high level of interest in learning. The scores range from 3.00 to 5.00, with a mean of 4.4900 and a relatively low standard deviation of 0.64346, suggesting that the students' interest levels are relatively consistent. It also indicates that, on average, the students perceive Kinyarwanda to be important for their future. The scores range from 2.00 to 5.00, with a mean of 4.3800 and a higher standard deviation of 0.82609, suggesting a wider range of opinions among the students regarding the future importance of Kinyarwanda.

The statistics indicate that the students' performance is assessed based on the grades they achieve in the national exam. The scores range from 2.00 to 5.00, with a mean of 4.4400 and a moderate standard deviation of 0.72919, suggesting a relatively consistent performance among the students. It specifies that, on average, the students have a high level of interest in the Kinyarwanda subjects they are studying. The scores range from 2.00 to 5.00, with a mean of 4.5100 and a relatively low standard deviation of 0.71767, indicating a consistent level of interest among the students.

The statistics suggest that the Soma umenye program is perceived to be helpful in improving students' performance. The scores range from 3.00 to 5.00, with a mean of 4.5100 and a relatively low standard deviation of 0.62757, indicating a consistent belief among the students regarding the program's effectiveness.

The statistics indicate that the students' academic performance in Kinyarwanda language is perceived to be consistently improving. The scores range from 2.00 to 5.00, with a mean of 4.3800 and a higher standard

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deviation of 0.86199, suggesting some variation in the perception of performance improvement among the students. The data shows that the students in this school achieve high performance levels in district and national exams. The scores range from 2.00 to 5.00, with a mean of 4.4000 and a moderate standard deviation of 0.80403, indicating a relatively consistent performance among the students.

In summary, the provided descriptive statistics highlight various aspects of student interests, beliefs, and academic performance in the context of Kinyarwanda language learning. The students generally exhibit high interest in learning, perceive Kinyarwanda to be important for their future, and have a consistent level of interest in the subjects they are studying. Additionally, the Soma umenye program is perceived as helpful in improving performance, and the students' academic performance in Kinyarwanda language is believed to be consistently improving. Furthermore, the students in this school perform well in district and national exams.

Discussion

Table 4.4 : Regression coefficient on provided training and learners’ performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.369	.318		7.448	.000
1 LEARNERS' PERFORMANCE	.435	.071	.526	6.117	.000

a. Dependent Variable: PROVIDINGTRAINING

the findings suggest that there is a statistically significant positive relationship between learners' performance and the provision of training. As learners' performance increases, the likelihood of providing training also increases. However, it is important to consider the context and additional details of the study to draw more accurate conclusions. Therefore, the null hypothesis was rejected.

$$Y = 2.369 + 0.435PT + \epsilon$$

Where *Y* = Learners' performance, *PT*

= Provided Training and ϵ = Error term

Table 4. 5: Regression coefficient of providing learning and teaching material and learners’ performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.094	.428		2.554	.012
1 LEARNINGMATERIALS	.786	.100	.621	7.853	.000

a. Dependent Variable: LEARNERS’ PERFORMANCE

the results from table 4.4 indicate that the provision of learning and teaching materials is a significant predictor of the learners’ performance in the study, as evidenced by the significant coefficient, t-value, and low p-value of 0.000. therefore, the null hypothesis was rejected.

$$Y = 1.094 + 0.786LTM + \epsilon$$

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Where Y = Learners' performance, LTM
= learning and teaching materials, ε
= Error term

Conclusion

Based on the aforementioned study findings, it can be deduced that in Musanze District, lower primary schools equipped with sufficient teaching and learning materials exhibit superior academic performance compared to those with insufficient resources. This suggests a significant influence of provided learning and teaching materials on learners' performance. Additionally, it can be concluded that schools where Soma Umenye conducts regular assessments and research tend to perform better. The results obtained indicate that in Musanze District, schools lacking trained teachers experience subpar academic performance, particularly in the context of Kinyarwanda language.

Recommendations

Ensure availability of up-to-date Kinyarwanda language textbooks, workbooks, and supplementary materials that align with the curriculum. Conduct regular professional development workshops and training sessions for Kinyarwanda language teachers to enhance their teaching methodologies, language proficiency, and understanding of the curriculum.

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**EFFECT OF EDUCATIONAL PROJECT ON LEARNERS
LEARNING OUTCOME IN TWELVE YEARS BASIC
EDUCATION SCHOOLS: A CASE OF SCHOOL
FEEDING PROGRAM AS IMPLEMENTED IN RUBAVU
DISTRICT, RWANDA**

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Abstract

The purpose of this study is to help students, parents, secondary teachers, school's kitchen managers and Head teachers to master the methods and their role in encouraging learners to take lunch at school; especially improve student's learning outcomes in twelve years' basic education. The objectives are to assess the influence of food ratios and the timing of the meals on learning outcomes in Twelve Years basic education schools of Rubavu district, to assess the influence of food quality on learning outcomes in twelve years basic education schools of Rubavu district and. The study employed a descriptive research design Questionnaires to enable the researcher to bring out the details of the exact situation on the ground. This study was being done at 4 twelve years basic education located in the Rubavu district targeting 2112 students. Therefore, 336 respondents were the target population of this study and the composition of the participants. To validate and ensure reliability of the questionnaire, a test retest was conducted in a space of two weeks between the test's correlation coefficient using SPSS version 22.0 (V. 22.0) was established and after which necessary adjustments on the content and its reliability was ensured before the main study. In this way, sampling technique was a simple purposive sampling technique was employed in this study, where every participant was given an equal and independent chance to participate. Recommendations of the study were: Government has to mobilize more stakeholders or non-government organization to orient their funds in the implementation of school feeding program, Parents must participate in school feeding program rather than thinking that this program should only be sponsored by government, Government has to develop continuous professional development that are related to the effective implementation of school feeding program and Government should make monitoring and evaluation of school feeding program because some of the school do not put more effort in its implementation.

Keywords: *learning outcomes, school feeding program, Twelve Years Basic of Education and quality of education*

Internationally, the aspiration of all countries in the United Nations is to address the difficulties coming about because of propelling globalization brought about the detailing of the MDGs in the year 2000. In the plan of the MDGs consideration was paid to appetite and neediness as expressed in MDG number1: Eradicate Extreme yearning and destitution. The sub objective figured thusly is: continuously 2015 the extent of individuals who experience the ill effects of craving is split when contrasted with 1990 (UNESCO, 2005) School encouraging projects constitute basic mediations

SCHOOL FEEDING PROGRAM

that were presented in various created and creating nations of the world to address the issues of neediness, to fortify school enrolment and improve understudies' execution. (Akanbi, 2013) As right on time as the 1930s, the United States (USA) and the United Kingdom (UK) used FFE to enhance youngsters' wellbeing (Gokah, 2008); these early projects appeared as school bolstering programs (SFP), where members were encouraged a supper or a nibble at school.

Then, MINEDUC- funded program that subsidizes meals cooked at secondary schools, hereafter referred to as the Secondary School Feeding Program. The third program is implemented by WFP, providing food a cooked lunch to primary and lower secondary school children, in insecure Districts. The ration is hot meal consisting of beans, fortified maize, vegetables, oil and salt. The free programs combined respond to 10% of all students, nursery school, primary and secondary schools in Rwanda (ESSP 2013/14 – 2017/18). School feeding programs are an effective mechanism for addressing child nutrition issues, increasing educational enrolment, retention and performance (Dr. Ministry of education, 2019). This research specifically addressed the effect of school feeding program on learning outcome. This means the school completion rate depends on school feeding.

Hypothesis

There is no significant influence of food ratios and the timing of the meals on learning outcomes in Twelve Years basic education schools of Rubavu district and There is no significant influence of food quality on learning outcomes in Twelve Years basic education schools of Rubavu district.

Empirical review

The empirical review means the research that was made in past years about the problem which seems to have the same information. A researcher described them below in detailed about what others have done. Less developed countries its education is rising on good level (Damon, Glewwe, Wisniewski & Sun, 2016). Education enrollment in higher education is expanding quickly while around 67 million children who are at the age of enroll primary school are not able to continue 53 % are girls among those numbers while 43% of them are located in sub Saharan Africa (World Food Programme, 2013).

Food quality and academic performance

Generally, interaction between nutrition and education can be understood in three ways (Ahmed, 2004). Firstly, health statuses and nutrition influence the child's learning and his / her performance in school. That is why poor nutrition among children affects their cognitive function and hence reduces their ability to participate in learning activities at school. Secondly, children who are malnourished or unhealthy are unable to attend school regularly and which in turn leads to poor academic performances. Thirdly, hungry children encounter difficulties concentrating and performing complex tasks than those who are well nourished. So, poor children who

don't get the basic nutritional building blocks from birth will be unable to learn easily. By the time, studies show that these children grow to primary school age, where most damages have occurred to them and in fact such damages are irreversible. Even if school meals are provided after this critical period, their capacity of learning is much less than what would have been if they were properly fed from infancy (WFP).

It has been argued that school meals increase school participation by improving child nutrition through two links (Gokah, 2008). First, school meals enhance nutrition by enabling children to get more nutrients. Second, enhanced nutrition leads to better educational achievements. The study also reveals that child nutrition, child health and child schooling reflect household preferences in human capital investments in the child; they might be correlated without any direct causal relationship between them. Another study shows how school feeding programs can enhance health by reducing morbidity and illness which hence attract children to school (Tomlinson, 2008).

However, there are conflicting arguments as to whether households adjust the feeding practices of school children at home in response to SFPs. (Adelman, 2008) shows there is no reduction of food at home given to children who participate in SFPs in such a way that those children who benefit from SFP should get less at home. Instead, school meals are additional diets intended to what he or she can get from home. To the contrary, there are counter arguments to such claims.

In response to the school meals, families may also adjust resource allocation among children within the household by taking away some resources from beneficiary children and redistributing them to other members of the household (Gilligan, 2008). As a result, those children from whom resources are taken away will be worse off if the food provided at school is not very useful compared to what they would have had at home.

School Feeding Program and School Participation

Having examined the conceptual relationships between school meals and school participation, this section discusses some of the relevant empirical studies. Most of the writing investigated that for this examination uncover SFP for sure positive effect on school support as estimated by school enlistment, class participation, and understudy drop-out-status (Adelman, 2008). Be that as it may, the vast majority of these discoveries depend on exact information acquired from schools where the program was mainstream and has been moderately successfully actualized.

(Tomlinson, 2008) directed a field – think about in Western Kenya preschools in the vicinity of 2000 and 2004 to assess the effects of school sustaining programs on school interest and accomplishment. In this unique situation, preschoolers are characterized as youngsters between ages of 4 and 6 who lived inside a strolling separation of school. They found that youngsters in the treatment amass took an interest 35.9% of the time

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contrasted with 27.4% in the examination (control) gathering and this distinction was factually noteworthy (2004) The program expanded support of the two kids who were beforehand enlisted (what they call escalated edge) and kids who might have gone to class without the program (broad edge). Since there are solid complementarities between educator attributes and school meal is, they stress that any expansion in school interest without qualified training misses the mark concerning better instructive accomplishment.

Nevertheless, their study was on preschools and hence this may not have much relevance for primary school children. Besides, preschoolers are early-age children and may not have family obligations like many primary school age children might have in poor areas. Thus preschoolers are relatively free of duties that could keep them away from school.

Another study conducted in Jamaica shows that school meals indeed enhance education of beneficiaries (Grantham, 1998)). They found that school execution pointers (enlistment, participation, drop-out, and rate, reiteration of evaluations, school fulfillment levels, psychological capacity, and classroom conduct) have all been enhanced in light of school encouragement. This is on the grounds that the arrangement of school suppers diminishes the guardians' cost of sending youngsters to class in this manner, advancing early enlistment and enhancing participation. The vast majority of time youngsters spend on learning in light of school dinners, the more they will learn and the less they rehash school or drop – out.

Opposite to different examinations, they are basic to class dinners and they question on the off chance that they have any positive effect on school support whatsoever. For example world food program helped the school encouraging system (what he calls the standard program) and found that it doesn't expand enlistment at any level contrasted with control schools (on the same page).

The following subsections are some of the literature in relation to the three aspects of school participation (school enrollment, class attendance and student drop-out) that will be discussed.

Methodology

The researcher used correlation research design method. This comprises using questionnaire in collecting data from the respondents. In collecting data, questionnaires distributed to the concerned populations that carefully was chosen by the researcher. The researcher used a case study because it is an effective way of collecting data in a short period of time. As recommended by Kothari (1985), this method is effective since it is used to narrow down a very broad field of research into one easily researchable topic. This study was undertaken into the population found in the Rubavu district but considering different categories found in the study area; this study was done at 4 twelve years' basic education located in the Rubavu district targeting 2112 respondents including parents who are involved in

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school feeding committee, learners, and staff members (head teacher, DOS and Teachers).

Findings

This section presents the findings of the study on two specific objectives addressed. Each objective, descriptive statistics (mean and standard deviation).

The effect of food ratios and timing of meals on learning outcomes

The respondents were asked to provide the answers to the statements given about food ratios and timing of meals, descriptive statistics of their answers is presented in the table 8 below.

Table 1: Descriptive Statistics on Food ratios and timing of meals

Statements	N	Min	Max	Mean	Std
In this school students changes the type of foods	336	1.00	5.00	4.0060	1.42052
In this school foods quantity served to the students depending on classes	336	1.00	5.00	4.2173	1.17834
In this school food quantity served to Students depending on ages	336	1.00	5.00	4.2976	.98986
In this school students get satisfied with the food served to them	336	1.00	5.00	4.3661	1.12499
In this students takes lunch on constant time	336	1.00	5.00	4.0655	1.28662
In this school giving leaners sufficient food increase their academic performance	336	1.00	5.00	4.1815	1.24340
This school has enough food store	336	1.00	5.00	4.0417	1.43664
In this school students take breakfast on scheduled time	336	1.00	5.00	4.1220	1.36042
In this school parents provide school feeding contribution to supplements reserved money for the program	336	1.00	5.00	4.1429	1.32388
In this students get enough time for lunch	336	1.00	5.00	4.0744	1.32838
Overall	336			4.1515	1.269305

Source: research data

Note: Strongly Disagree = [1] = Very Low mean; Disagree = [1-2] =Low mean; Neutral = [2-3] =moderated mean; Agree = [3-4] =High mean; Strongly Agree = [4-5] = Very High mean

The results in table 8, show the opinions of respondents about different statements defining food ratios and timing of meals. These statements have effect on learning outcomes. Considering the mean from responses, it is clear that statements are in the following category: high mean. The results in all these categories show that the respondents agreed with the statements related to the food ratios and timing of meals on learning outcomes. Statements with very high mean are: In this school students changes the type of foods ($\mu=4.0060$ and $STD=1.42052$), In this school foods quantity served to the students depending on classes ($\mu=4.2173$ and $STD=1.17834$), In this school food quantity served to Students depending on ages ($\mu=4.2976$ and $STD=0.98986$), In this school students get satisfied with the food served to them ($\mu=4.3661$ and $STD=1.12499$), In this students takes lunch on constant time ($\mu=4.0655$ and $STD=1.28662$), In this school giving leaners sufficient food increase their academic performance ($\mu=4.1815$ and $STD=1.24340$), This school has enough food store ($\mu=4.1220$ and

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STD=1.43664), In this school students take breakfast on scheduled time($\mu=4.1220$ and $STD=1.36042$), In this school parents provide school feeding contribution to supplements reserved money for the program($\mu=4.1429$ and $STD=1.32388$), In this students get enough time for lunch($\mu=4.0744$ and $STD=1.32838$). The overall mean indicated that majority of respondents strongly agreed that food ratios and timing of meals have significant influence on learning outcomes as indicated by ($\mu=4.1515$ and $STD=1.269305$).

The effect of quality of the food on learning outcomes: The respondents provided the answers to the statements given about quality of the food, descriptive statistics of their answers is presented in the table 9 below.

Table 2: Descriptive Statistics on quality of the food

Statements	N	Min	Max	Mean	Std.
In this school has refrigerant which keeps biodegradable things	336	1.00	5.00	4.0744	1.23039
In this school foods served is really well cooked	336	1.00	5.00	4.3036	1.28253
In this students are given food which contain all different categories of vitamins	336	1.00	5.00	4.0030	1.39829
The foods served is clean and has no sand or any other rubbish	336	1.00	5.00	4.0298	1.34686
Students are served warm foods	336	1.00	5.00	3.7887	1.35161
The meals which are served is too tasty	336	1.00	5.00	4.1190	1.19356
In this schools students are given food which contains minerals	336	1.00	5.00	4.1756	1.06594
In this schools learners are given food which contains unsaturated fats	336	1.00	5.00	4.6161	.78317
In this school, students are given food which contains proteins	336	1.00	5.00	4.6815	.78972
In this students are given food which contains enough vegetables.	336	1.00	5.00	4.4077	1.08055
Overall	336			4.21994	1.152262

Source: research data

Note: Strongly Disagree = [1] = Very Low mean; Disagree= [1-2] =Low mean; Neutral= [2-3] =moderated mean; Agree= [3-4] =High mean; Strongly Agree= [4-5] = Very High mean

The results in table 9, show the opinions of respondents about different statements defining quality of food. These statements have effect on learning outcomes. Considering the mean from responses, it is clear that statements are in the following category: very high mean. The results in all these categories show that the respondents agreed with the statements related to the quality of food on learning outcomes. Statements with very high mean are:

In this school has refrigerant which keeps biodegradable things ($\mu= 4.0744$ and $STD=1.23039$), In this school foods served is really well cooked($\mu=4.3036$ and $STD=1.28253$), In this students are given food which contain all different categories of vitamins($\mu=4.0030$ and $STD=1.39829$), The foods served is clean and has no sand or any other rubbish($\mu=4.0298$ and $STD=1.34686$), Students are served warm foods($\mu=3.7887$ and $STD=1.35161$), The meals which are served is too

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tasty($\mu=4.1190$ and $STD=1.19356$), In this schools students are given food which contains minerals($\mu=4.1756$ and $STD=1.06594$), In this schools learners are given food which contains unsaturated fats, In this school($\mu=4.6161$ and $STD=0.78317$), students are given food which contains proteins($\mu=4.6815$ and $STD=0.78972$), In this students are given food which contains enough vegetables($\mu=4.4077$ and $STD=1.08055$). The overall mean indicated that majority of respondents strongly agreed quality of the food have significant influence on learning outcomes as indicated by ($\mu=4.21994$ and $STD=1.152262$).

Learning outcomes: The respondents provided the answers to the statements given about quality of the food, descriptive statistics of their answers is presented in the table 11 below.

Table 3 : Descriptive Statistics learning outcomes

Statements	N	Min	Max	Mean	Std.
In last five years, learners behavior changed	336	1.00	5.00	4.1220	1.12767
In last five years learners motivation increase	336	1.00	5.00	4.0833	1.32672
In last five years students' academic performance increased	336	1.00	5.00	4.0149	1.44648
In last five years, learners attendance increased	336	1.00	5.00	4.1101	1.28937
In last five years, learners repetitions reduced	336	1.00	5.00	4.0327	1.35893
In last five years, learners performance in national examination increased	336	1.00	5.00	4.1429	1.22796
In last five years, school dropout reduced	336	1.00	5.00	4.3333	1.02603
In last five years, learners performance in school based exams increased	336	1.00	5.00	4.0208	1.30539
In last five years, learners dodging the school reduced	336	1.00	5.00	4.0030	1.16028
In last five years, learners scores increased	336	1.00	5.00	4.0536	1.12639
Overall	336			4.09166	1.23952

Source: research data

Note: Strongly Disagree = [1] = Very Low mean; Disagree= [1-2] =Low mean; Neutral= [2-3] =moderated mean; Agree= [3-4] =High mean; Strongly Agree= [4-5] = Very High mean

The results from table 11, indicated that the majority of respondents strongly agreed that learning outcomes was increased since the introduction of school feeding program those factors are described as follow: In last five years, learners' behavior changed($\mu=4.1220$ and $STD=1.12767$), in last five years' learners' motivation increase($\mu=4.0833$ and $STD=1.32672$), In last five years students' academic performance increased($\mu=4.0149$ and $STD=1.44648$), In last five years, learners attendance increased($\mu=4.1101$ and $STD=1.28937$), In last five years, learners repetitions reduced($\mu=4.0327$ and $STD=1.35893$), In last five years, learners performance in national examination increased($\mu=4.1429$ and $STD=1.22796$), In last five years, school dropout reduced($\mu=4.3333$ and $STD=1.02603$), In last five years, learners performance in school based exams increased($\mu=4.0208$ and $STD=1.30539$), In last five years, learners dodging the school reduced($\mu=4.0030$ and $STD=1.16028$), In last five years, learners scores increased($\mu=4.0536$ and $STD=1.12639$). The overall mean indicated that majority of respondents strongly agreed that learning

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outcomes was increased since the introduction of school feeding program as indicated by ($\mu=4.09166$ and $STD=1.23952$).

4.3.2. Presentation of findings through inferential statistics (regression analysis)

This section presents the answers collected from the questionnaires given to the respondents. The answers were transformed into inferential statistics. This involves model summary, the analysis of variance and the regression coefficients, and they are presented in tables below:

Table 4: Model Summary for Food ratios and timing of meals on learning outcomes

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.937 ^a	.879	.863	.03616

a. Predictors: (Constant), Food ratios and timing of meals

The results from table 12, indicated that Food ratios and timing of meals has effect of 87.9% of the variation in learning outcomes as explained by R^2 of 87.9% which indicated that model is good prediction.

Table 5: Analysis of variance for Food ratios and timing of meals on learning outcomes

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.076	1	.076	57.848	.000 ^b
	Residual	.010	8	.001		
	Total	.086	9			

a. Dependent Variable: Learning outcomes

b. Predictors: (Constant), Food ratios and timing of meals

The results of variance analysis in table 12, indicated regression coefficient as showed that there is significance effect on Food ratios and timing of meals (P value >0.05). Conclusively there is significant influence of Food ratios and timing of meals on learning outcomes. Then, null hypothesis is rejected while alternative is accepted.

Table 6: Regression coefficients for Food ratios and timing of meals on learning outcomes

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.822	.430		1.913	.000
	Food ratios and timing of meals	.787	.103	.937	7.606	.000

a. Dependent Variable: Learning outcomes

The results from table 14, indicated that there was a positive and significant effect of Food ratios and timing of meals on learning outcomes ($B=0.787$, P value >0.05). This explain that one unit of change in Food ratios and timing of meals increases learning outcomes by 0.787 units.

Table 7: Model summary for the quality of the food on learning outcomes

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.888 ^a	.788	.762	.04771

a. Predictors: (Constant), QUALITY

The results from table 15, indicated that quality of the food has effect of 87.9% of the variation in learning outcomes as explained by R^2 of 78.8% which indicated that model is good prediction.

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Table 8: Analysis of variance for Food quality on learning outcomes

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	.068	1	.068	29.815	.001 ^b
	Residual	.018	8	.002		
	Total	.086	9			
a. Dependent Variable: Learning outcomes						
b. Predictors: (Constant), Quality of food						

The analysis of variance in table 16, showed that quality of food has positive and significant influence on learning outcome in secondary school in Rubavu district ($F = 29.815$ P value > 0.05). This indicated that null hypothesis is rejected and alternative one is accepted.

Table 9: Regression coefficients for Food quality on learning outcomes

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.791	.238		11.719	.000
	Quality of food	.308	.056	.888	5.460	.001

a. Dependent Variable: Learning outcomes

The results in table 17, revealed that there was a positive and significance relationship between Food quality on learning outcomes ($\beta = 0.308$, p value < 0.05). This means that a unit of change on quality of food, increases learning outcome by 0.308 units.

Conclusion

The research concludes that food ratios influences school learning outcome such as providing enough food like quantity and giving them food on time it enhances teaching and learning process. Also by providing quality food to learners, there is improvement of learning outcomes because it contains all nutrients needed by learner to grow physically and mentally. another aspect required material led to school feeding program to function well as we have seen that once there is that program, there is reduction of drop out, increased school attendance, and increased school enrollment rate.

Recommendation

Government has to mobilize more stakeholders or non-government organization to orient their funds in the implementation of school feeding program; Parents must participate in school feeding program rather than thinking that this program should only be sponsored by government.

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**EFFECTIVE USE OF LEARNER CENTERED METHOD
IN TEACHING AND LEARNING BIOLOGY IN UPPER
SECONDARY SCHOOLS OF RUSIZI DISTRICT**

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Abstract

This paper examined the effective use of learner centered method in teaching and learning biology in upper secondary schools of Rusizi district. The current paper gathered qualitative and quantitative data using questionnaires, interview guides and observation. A descriptive research design has been used. Quantitative data was presented, analyzed and interpreted using the Statistical Package for Social Sciences (SPSS). Qualitative data was presented and analyzed in form of extracts, explanations and interpretations. In addition this study was guided by the Constructivism Learning Theory. Although previous researchers revealed that the usage of learner-centered approach plays a great role in biology teaching and learning, the findings of the current paper evidenced that learner-centered approach is not used effectively in upper secondary schools of Rusizi district in Rwanda due to limited time, scarcity of teaching and learning resources, teachers' heavy workload, lack of knowledge about learner-centered instruction, biology subject culture, teachers' attitude toward learner-centered instruction, lack of funding and limited ability to afford adequate resources for biology teaching and learning. Furthermore, the current paper identifies strategies that can be used to alleviate the challenges associated to the effective use of learner-centered method in teaching and learning biology within upper secondary schools of Rusizi district which are increasing teacher training and professional development about using learner centered method, availing enough resources for biology teaching and learning, teachers' workload alignment, integrating technology in biology teaching and learning as well as the implementation of CBC.

Keywords: *Learner-Centered Approach, Teaching and Learning Biology, Uper Secondary Schools*

Learner-centered teaching and learning is an approach that puts the learner in the center of a teaching and learning process (Fall, 1999). The learner hence becomes an active participant in the learning process. This is opposite to the traditional teacher-centered approach where the student is a passive recipient in the learning process and is viewed as an empty vessel to be filled with knowledge supposed to be provided by the teacher (Cottel & Millis, 1993; Bonner, 1999). In learner-centered teaching and learning, the role of a teacher consists of creating a suitable learning environment for the learners, mainly by constructing authentic and real life tasks that increases learner's involvement and participation (Weimer, 2002). Learner-centered teaching, therefore, allows teachers to evaluate learners according to criteria that are important in actual performance for their future instead of memorization of concepts (Wiggins, 1989).

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The use of learner-centered methods in teaching and learning has gained worldwide approval due to its immense benefits which includes enhanced content retention by the student and promoted critical thinking as well as creativity (Maxwell, 1998; Slavin, 1990). All the learners benefit from this effective instruction no matter how diverse their learning needs are (Stuart, 1997). This is because motivation and actual learning increase as the learners have an interest in their own learning and are treated as co-creators in the learning process (McCombs & Whistler, 1997). During biology teaching and learning, like in any other subject, learner-centered method places the learner at the center of Education while the instructor assumes responsibility for facilitating and guiding the students' education (Tackers & Hardman, 2001; Majanga, Nasanga, and Sylvia, 2011).

The Government of Rwanda has also invested a lot in teachers' in-service training to improve quality and relevance of Education (Ogwel&Kisangi, 2009). Here, improvement is being done step by step including introduction of practical national exams in science subjects such as biology and the change of curriculum from knowledge-based curriculum (KBC) to competence-based curriculum (CBC). Furthermore, the Government of Rwanda has organized many teachers' trainings on learner-centered method and many teachers are claiming that they are already applying this approach in their teaching.

However, The survey conducted by Africa Institute for Mathematical Sciences (2018) indicates that from 2013-2017, 44% of candidates in Rusizi district failed Biology in Rwanda National Examinations because only 16% of candidates managed to score between grade 1 and 4.

In addition, the study conducted Ndayambaje, Bikorimana, & Nsanganwimana (2021) reveals that students' academic performance in biology is poor in secondary schools of Rwanda during the year 2017 to 2019. This implies a gap to effectively apply learner-centered methods in teaching and learning biology within the district. For this reason, the current paper explored the status of using learner-centered method in teaching and learning biology within secondary schools of Rusizi district and factors and strategies to alleviate the challenges that both teachers and students are facing while applying this new teaching and learning approach.

Material and Methods

The objectives of this paper are: to explore the status of use of the learner-centered method in teaching and learning biology within advanced level of secondary schools of Rusizi district, in Rwanda; to investigate factors that may be hindering effective use of learner-centered method in teaching and learning biology within advanced level of secondary schools of Rusizi district and to explore strategies that can be used to alleviate the challenges associated to the effective use of learner-centered method in teaching and learning biology within advanced level of secondary schools of Rusizi district.

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In order to accomplish these objectives, the current study collected data using questionnaires, interview guides, documentation and observation. A descriptive research design has been used. Quantitative data was analyzed by the use of the Statistical Package for Social Sciences (SPSS) while qualitative data has been presented and analyzed using extracts and explanations.

The research population comprises biology students from upper secondary schools in Rusizi district, along with teachers and school administrators, including Head Teachers and Deputy Head Teachers. A total of 75 respondents were selected for the study, including 63 students, 4 biology teachers, 4 Deputy Head Teachers responsible for Studies (DOSs), and 4 Head Teachers. The selection process employed a combination of simple random sampling, stratified sampling, and purposive sampling based on respondent categories.

In addition, primary data were collected using questionnaires, interview guides and observation while secondary data were collected through document analysis about effective use of learner centered method in teaching and learning biology.

Furthermore, the paper was guided by Jean Piaget's Constructivism Theory (Piaget, 1967) which states that individuals try to make sense of all information they perceive when this information interacts with their prior knowledge.

As a result, the individuals construct their own meaning of the received information based on their knowledge. Piaget called this prior knowledge Schema (Cakir, 2008). In this regards, Naylor and Keogh (1999) define learning as an active process by which learners construct meaning by linking new ideas with their existing knowledge. The central principle is that learners can only make sense of new situations in terms of their existing understanding.

Lev Vygotsky (1987) held a different opinion on the impact the social-cultural environment has on the learning process of the child. He argued that for effective learning to take place, the learning environment should involve guided interactions that permit children to reflect on inconsistency and change their perceptions through communication. To conclude, we can say that effective learning is based on students' prior knowledge and their interaction with learning environment. The two parameters incite students to actively participate in the whole learning process. This theory was quite useful in the achievements of the current paper's objectives.

Results and Discussion

The Status of Use of Learner Centered Method in Teaching and Learning Biology in Upper Level of Rusizi District Secondary Schools: The current researcher collected quantitative data about students' views on the importance of learner-centered method in biology teaching and learning. Therefore, the table below presents the findings about the views of students.

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Table 1: Students’ Views on Status of Use of Learner Centered Method in Teaching and Learning Biology in Upper Level of Rusizi District Secondary School

Statements	Never		Rarely		Sometimes		Often		Always		Mean	Std
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%		
Our biology teacher spend most of the class time giving lectures or presentation	10	16.1	7	11.3	27	43.5	5	8.1	13	21.0	3.06	1.3
We work in group’s on assignment	2	3.2	2	3.2	28	45.2	8	12.9	22	35.5	3.7	1.08
We are involved in deciding what and how we want to learn	2	3.2	17	27.4	15	24.2	6	9.7	22	35.5	3.4	1.3
We are given opportunity to explain results of our group discussion	0	0	7	11.3	13	21.0	6	9.7	36	58.1	4.1	1.1
We are given enough time to show what we have learnt	4	5.4	5	8.1	23	37.1	12	19.4	18	29.0	4.0	3.9
We interact with instructor, and with one another	3	4.8	12	19.4	31	50.0	3	4.8	13	21.0	3.1	1.1
We are given opportunity to evaluate ourselves	3	4.8	6	9.7	22	35.5	9	14.5	21	33.9	4.4	6.6
During biology teaching and learning, the classroom is noisy and busy	12	19.4	8	12.9	22	35.5	8	12.9	12	19.4	3.0	1.3

Source: Research findings, 2023

Based on this table, the findings above implies that leaner-centered method is not used effectively in teaching and learning biology in advanced levels of secondary schools of Rusizi district in Rwanda.

LEARNER CENTERED METHOD IN TEACHING AND LEARNING

Table 2: Teachers' Views on Status of Use of Learner Centered Method in Teaching and Learning Biology in upper level of Rusizi District Secondary Schools

Statements	Never		Rarely		Sometimes		Often		Always		Mean	Std
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%		
I spend most of the time class giving lectures or presentation	0	0.0	1	25	2	50	1	25	0	0.0	3.06	1.3
I allow students to work in group's on assignment	1	25	3	75	0	0.0	0	0.0	0	0.0	1.7	0.5
I involve in deciding what to be learnt and how to learn it	0	0.0	2	50	2	50	0	0.0	0	0.0	2.5	0.5
I give students opportunity to explain results of their group discussion	0	0.0	1	25	3	75	0	0.0	0	0.0	2.7	0.5
I give enough time to students to show what they have learnt	0	0.0	1	25	1	25	2	50	0	0.0	1.7	0.5
I favor students' interaction with me and with one another	0	0.0	0	0.0	4	100	0	0.0	0	0.0	2.0	0.0
I give students opportunity to evaluate themselves	2	50	1	25	0	0.0	1	25	0	0.0	2.0	1.4
During biology teaching and learning, the classroom is noisy and busy	3	75	1	25	0	0.0	0	0.0	0	0.0	1.2	0.5

Source: Research findings, 2023

In addition, during the preparation of the current paper, the researcher sought to get the views of the key informers about the status of use of learner centered method in teaching and learning biology in advanced level in secondary schools of Rusizi district. The key informer who participated in this research were 4 DOSs and 4 Head Teachers from the 4 selected secondary schools in Rusizi district.

In all the interaction with the above mentioned key informers, the key question was the following: *What is the status of learner-centered method in teaching and learning biology in your school.* All four Head teachers participated in this research responded that in their schools, the learner-centered method in teaching and learning biology is effectively applied. One of them added that learner-centered method is obliged to biology teachers and to all teachers of the other subjects because the competency based

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curriculum that is being implemented in Rwandan education forces teachers to use learner-centered method in all teaching and learning activities.

After collecting data from Head Teachers, the researcher collected data from DOSs not only to ensure that all necessary information was collected but also to compare responses from different sides. The following are answers provided by DOSs.

In this school, learner-centered method is used by biology teachers. The teachers of biology while teaching biology, they try to put students in groups and allow them to learn through discussion. This is why I say that the status of learner-centered method in teaching and learning biology is not effective in our school. Source: Research Findings (2023).

According to this respondent, in their school, learner-centered method in teaching and learning biology is effective because the teachers allow students to work collaboratively in groups. The second respondent provided the following answer:

In our school, learner-centered method in teaching and learning biology is not bad because the teacher of biology involves students in teaching and learning activities. Students participate in teaching and learning activities by doing experiments, by asking questions and by interacting with one another. Source: Research Findings (2023)

The responses provided by the above respondent indicate that in their schools, learner-centered method in teaching and learning biology is effective because students work in groups, conduct biology experiments and interact between them.

The third respondent said the following:

In biology teaching and learning biology learner-centered method is not used as it is required. This is because learner centered method requires much time that teachers do not have. The teachers have a lot to cover in order to facilitate students to be ready for the national examinations. Thus, the teacher of biology fail to implement the learner centered methodology as it is with the purpose of saving a time. Source: Research Findings (2023)

This extract indicates that, learner-centered method is not fostered in teaching and learning biology under reason to save time and finalize the syllabus.

In addition, another respondent said, Learner-centered method in teaching and learning biology is used even if I can't say that it is used at the required extent. Our teachers of biology try to implement it despite various challenges. Because of the numbers of students that we have in one classroom, it is not easy for our biology teacher to implement learner-centered method easily. Source: Research Findings (2023)

The response of this respondent shows that learner-centered method is used in teaching and learning biology even if it is not used successfully due to crowded classroom and the associated challenges. From the responses provided by key informers, even if learner-centered method is

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implemented in teaching and learning biology, it is not implemented successfully due to various challenges big class size, limited time and teachers responsibilities.

Furthermore, the findings from observation indicate that learner-centered method is not used effectively in teaching and learning biology in advanced level of secondary school of Rusizi District in Rwanda.

The findings of the current study did not go far from the findings of the study conducted by Schweisfurth (2011) who conducted a study on effective use of learner-centered method and find the following.

One thing that is certain is that teachers are unaccustomed to effective use of learner-centered practice in their own educational experiences or in the systems in which they work. Teachers are very unlikely to use it effectively learner-centered approach in their teaching activities. This can make things worse as well by undermining educational productivity (Schweisfurth, 2011: 3).

The above extract evidenced that some of the teachers do not use learner-centered method accordingly based on their low level of competency in education sector. Therefore, teachers who teaches biology in advanced level in secondary schools of Rusizi district in Rwanda do not use effectively learner-centered method in biology teaching and learning process. Moreover, the findings of this study do not go far from the findings of Tadesse (2020) who conducted a research effectiveness of student-centered approach and find that that, learner student-centered approach is still a dilemma since teachers especially those who are familiar with teacher-centered approach do not prefer using learner-centered approach because they consider it as an effort and time consuming approach. This implies that some of the teachers do not like using learner-centered method. Therefore, the findings of the current study evidences that implies that learner-centered method is not used effectively in teaching and learning biology in advanced levels of secondary schools of Rusizi district in Rwanda.

Factors Hindering Effective Use of Learner-Centered Method in Teaching and Learning Biology in Upper Level of Rusizi District Secondary Schools: The second objective of this research was to investigate factors that may be hindering effective use of learner-centered method in teaching and learning biology within upper level of Rusizi District secondary schools. In order to get information about such factors, firstly, the research requested teachers to fill questionnaires. Secondary, the researcher conducted interviews with key informers (DOSs and Head teachers) from the selected schools. Lastly, the researcher used observation method. The following are the finding that have been found.

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Table 3. Factors Hindering Effective Use of Learner-Centered Method in Teaching and Learning Biology in Upper Level of Rusizi District Secondary Schools

Statements	SA		A		N		D		SD		Mean	Std
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%		
Big class size is hindering effective use of learner-centered method in biology education in our school	1	25	2	50	1	25	0	0.0	0	0.0	2.0	0.8
Limited time is hindering effective use of learner-centered method in biology education in our school	1	25	3	75	0	0.0	0	0.0	0	0.0	1.7	0.5
Scarcity of teaching and learning resources is hindering effective use of learner-centered method in biology education in our school	1	25	3	75	0	0.0	0	0.0	0	0.0	1.7	0.5
Teachers' workload is hindering effective use of learner-centered method in biology education in our school	3	75	1	25	0	0.0	0	0.0	0	0.0	2.2	0.5

Source: Research Findings (2023)

The findings gotten from teachers indicate that the factors hindering effective use of learner-centered method in biology education in upper secondary school of Rusizi district are: limited time, scarcity of teaching and learning resources and teachers' heavy workload.

During data collection about factors hindering effective use of learner-centered method in biology education in secondary schools of Rusizi district in Rwanda, the researcher conducted interviews with DOSs and Head teachers.

In order to get required information, all the interaction was around the key question. *“What are the factors hindering effective use of learner-centered method in biology in teaching and learning in advanced level in your school?”* The following are answers provided by the respondents.

One of the challenge that affect effective use of learner-centered method in biology teaching and learning is limited teachers' knowledge about the implementation of learner-centered method. Teachers have not been trained enough to implement learner-centered method while teaching and learning. This is affecting negatively our teacher of biology to implement learner-centered method effectively in biology teaching and learning. Source: Research Findings (2023)

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According to this respondent, the challenge that is hindering effective use of learner-centered method in biology teaching and learning in advanced level in their school, is teachers' low ability to implement learner-centered method in biology teaching and learning.

Another teacher said,

The factor that is hindering effective use of learner-centered method in biology teaching and learning in advanced level in this school is that some of our teachers are not used to learner-centered method implementation. Some of them have studied via teacher-centered approach and they prefer using it because they consider it is a very easier method to use. Even if the new curriculum requires teachers to use learner-centered methods, while teaching and learning find themselves using teacher-centered method because they are not familiar with learner centered-d method implementation. Source: Research Findings (2023).

The answer of the above respondent highlights that that some teachers prefer using teacher-centered method because they are not familiar with learner-centered method and this hinders effective use of learner-centered method precisely in biology teaching and learning in advanced level in the school of the current respondent.

The third respondent who participated in this study said,

The factor that is hindering effective use of learner-centered method in biology teaching and learning in advanced level in this school is the factors of limited funds. The implementation of learner-centered methods requires enough teaching and learning materials that we don't have in this school. In biology teaching and learning, for the teacher to implement learner-centered methods, enough books, charts chemicals, microscopies are needed. Some of these materials are expensive to the extent that our school can't afford them. Source: Research Findings (2023)

The above extract shows that the factor that is hindering effective use of learner-centered method in biology teaching and learning in advanced level in this school is the factor of limited funds to afford biology teaching and learning required in effective implementation of biology teaching and learning.

The fourth respondent provided the following answer: The factor that is hindering effective use of learner-centered method in biology teaching and learning in advanced level in this school is associated with the objectives of biology teaching and learning. During biology teaching and learning, the teacher may focus on helping students to pass national exams and forget all other things. Because the use learner-centered method requires teachers enough preparation, in order to attain teaching and learning objectives, teachers prefer using teacher-centered method to make their work easier and this affect the effective use of learner-centered method in biology teaching and learning in this school of ours. Source: Research Findings (2023)

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The above extract shows that the teacher of biology do not use learner-centered method with the purpose of achieving educational objectives of enabling students to score higher marks in biology national exams.

Therefore, based on answer provided by DOSs and Head Teachers during interviews, the findings of the current study reveal that the factors that are hindering effective use of learner-centered method in biology teaching and learning in advanced level in secondary schools of Rusizi District are: insufficient teacher' training about implement of learner-centered method, resistance to change, limited funds to afford biology teaching and learning and biology teaching and learning objectives.

In fact, the findings of the current study are related with the findings of the study conducted by An & Reigeluth (2011:61). The following are the findings of the research conducted by these researchers. There are several barriers to implementing learner-centered instruction. These include: lack of time, lack of knowledge about learner-centered instruction, subject culture, teachers' attitude toward learner-centered instruction, lack of funding, limited resources, students' behavior and class size.

Strategies to Alleviate Challenges Associated to Effective Use of Learner-Centered Method: The third and the last objectives of the current study was to explore strategies that can be used to alleviate the challenges associated to the effective use of learner-centered method in teaching and learning biology within upper level of Rusizi district secondary schools. In order to achieve this objective, at the first hand the researcher collected information from four biology teachers by filling the questionnaires. On the other hand, the researcher conducted interviews with DOSs and Head Teachers from the selected schools of Rusizi district in Rwanda. The answers provided by teachers, DOSs and Head Teachers fall into four strategies. The following are answer provided.

The strategy that can be used alleviate the challenges associated to the effective use of learner-centered method in teaching and learning biology within advanced level of secondary schools of Rusizi district is preparation of trainings and workshops for biology teachers. If the Ministry of Education through its bodies organize trainings and workshops for biology teachers about using learner-centered method, such teachers can use learner-centered method effectively in biology teaching and learning. Source: Research Findings (2023)

According to the above respondent, trainings and workshops about learner-centered method implementation can be used as a strategy to overcome challenges affecting effective use of learner-centered method in biology teaching and learning in secondary schools of Rusizi district in Rwanda.

In addition, some of the key informers of the current study witnessed this. The strategy that can be used alleviate the challenges associated to the effective use of learner-centered method in teaching and learning biology

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within advanced level in our school is availing enough biology teaching and learning aids such as textbooks and learning materials: Providing up-to-date biology textbooks and learning materials is essential for learners to engage with the subject matter effectively. Textbooks should align with the curriculum and incorporate learner-centered approaches, such as inquiry-based activities, case studies and real-world examples. Additional supplementary materials, such as visual aids, simulations, and online resources, can enhance students' understanding and promote active learning. Source: Research Findings (2023)

According to this respondent, in order to overcome challenges affecting effective use of learner-centered method in biology teaching and learning in advanced levels, the strategy that can be used is the provision of biology books and other materials needed in effective implementation of learner-centered method in biology teaching and learning.

The strategies of alleviating the challenges associated to the effective use of learner-centered method in teaching and learning biology within advanced level in secondary schools is reducing biology teachers' workload. Implementing learner-centered methods often requires teachers to design and plan engaging and interactive lessons. When teachers have adequate time allocated for lesson planning, they can carefully consider the learning objectives, select appropriate resources, and design activities that promote student engagement and active learning. Source: Research Findings (2023)

According to the above respondent, because implementation of learner-centered method requires enough time, biology teachers' workload should be aligned in order to overcome the challenge of biology teachers' heavy workload that is hindering effective use of learner-centered method in biology within advanced level in secondary schools of Rusizi district in Rwanda.

In addition, some of the responses provided in interviews indicated that technology can be useful in overcoming factors affecting effective use of learner-centered method in advanced levels of secondary schools located in Rusizi district in Rwanda.

Technology can be used to overcome challenges associated with effective use of learner-centered method in biology teaching and learning in our school. Technology can provide students with access to a wide range of online resources, digital textbooks, interactive simulations and multimedia materials. Students can explore biology concepts at their own pace, engage with interactive content and access up-to-date information from credible sources. This promotes independent learning which the back is born of learner-centered method.

Source: Research Findings (2023)

The above extract shows that technology is useful in effective use of learner centered method as it allow students and teachers to access

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different resources indispensable in the implementation of learner centered method implementation. Finally, Head Teacher 3 also said that the strategy that can be used to alleviate challenges associated with effective use of learner-centered method in biology teaching and learning in their school is ICT integration in biology teaching and learning.

Those strategies are the following: increasing teacher training and professional development about using learner centered method, availing enough resources for biology teaching and learning, teachers' workload alignment, integrating technology in biology teaching and learning.

Therefore, the strategies that can be used to alleviate the challenges associated to the effective use of learner-centered method in teaching and learning biology within advanced level of secondary schools of Rusizi district have been identified.

The strategies identified include: increasing teacher training and professional development about using learner centered method, availing enough resources for biology teaching and learning, teachers' workload alignment, integrating technology in biology teaching and learning. According Stavreva & Kirova (2016:296), technology is useful in biology teaching and learning. The use of technological tools encourages students to think independently and it increase their activation in solving problems. However, Hurney (2012: 137) says that addressing teachers' workload is crucial to ensure the successful implementation of learner-centered methods in biology teaching and learning. It requires providing teachers with reasonable work expectations, adequate planning time, opportunities for collaboration, and ongoing professional development support. Therefore, in order to alleviating the challenges associated to the effective use of learner-centered method in teaching and learning biology within advanced level in secondary schools of Rusizi district in Rwanda, biology teachers' workload should be aligned.

Conclusion

In conclusion, the outcomes of this paper underscore two key points. Firstly, the utilization of the learner-centered method in the teaching and learning of biology at the advanced level within Rusizi district's secondary schools is not being effectively employed. Secondly, the research findings reveal a range of obstacles impeding the successful implementation of the learner-centered approach, including constraints such as time limitations, inadequate availability of teaching and learning materials, heavy teacher workloads, insufficient familiarity with learner-centered instructional techniques, prevailing biology subject norms, instructors' attitudes towards the learner-centered approach, and financial constraints that hinder the provision of adequate resources for biology education in the advanced levels of secondary schools within Rusizi District, Rwanda. Lastly, findings of the current study suggested some of the strategies that can be used to alleviate the challenges associated to the effective use of learner-

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centered method in teaching and learning biology within advanced level of secondary schools of Rusizi district. These include, among others, increasing teacher training and professional development about using learner centered method, availing enough resources for biology teaching and learning, reducing teachers' workload, and integrating technology in biology teaching and learning.

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