The Impact of Shifting the Medium of Instruction on Academic Performance in Lower Primary Schools in Rubavu District, Rwanda

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ABSTRACT

The aim of this research was to examine the academic performance results of lower primary school pupils in Rubavu District before and after the introduction of English as a medium of instruction (MOI). The study focused on school head teachers and teachers of English and Science Elementary Technology (SET) in five selected schools. The theoretical foundation of the study was the behaviorist theory of second language acquisition. The correlational research design and the mixed methods approach were applied. Data was collected through questionnaires and documentary reviews as research tools. The target population was 150 people, from which a sample of 69 participants, including school leaders and upper primary and lower primary teachers, was selected through purposive random sampling from five randomly selected schools. Excel and SPSS were used to aid in data analysis. The data was analyzed descriptively using frequencies and percentages and inferentially using the t-test. The key finding showed that learners' performance improved, with 71% of respondents believing that learners performed better when the method of instruction was shifted to English. This was also reflected in the quantitative data of t-test results, showing that learners performed better in English and SET after the MOI was shifted to English than before when it was in Kinyarwanda. In lower primary English, scores increased from 58.36 before the shift to 62.53 after the shift, while in SET, scores increased from 28.51 before the shift to 34.64 after the shift. In upper primary, scores increased from 46.27 before the shift to 49.51 after the shift, while in SET, scores increased from 40.56 before the shift to 45.73 after the shift. Respondents said that initially, EMI learners struggled due to different challenges, but when these issues were resolved, there was an improvement in learners' performance. The researcher recommends that the government and policymakers avoid instability in the MOI and consider early transitions, as they help pupils develop their target language from a young age.

Keywords: Academic Performance, Lower Primary Schools, Medium of Instruction, Rubavu District, Rwanda

I. INTRODUCTION

The language of instruction is the key tool of content delivery, so in that case, every nation chooses the language of instruction in the education system. In Europe, Tamtam et al. (2012) explain that "the English-Medium Instruction [EMI] is the boost of intercultural knowledge, advancement for international communication, and understanding the culture and quality of global mobility." The EMI gets popularity in different high education institutions across the globe (Curle, 2023). The European universities invested in teacher training in English without effort, but unfortunately they taught students with low English proficiency and without pedagogical practices in the target language (Makombe, 2015, p. 450). In Asia, EMI helps students get a good command of English, which helps them study abroad with English proficiency. EMI helps Arabian students get good positions on the labor market. Asian learners adjust to British education reality after leaving their native countries (Tamtam et al., 2012). Most African countries choose the second language as the medium of instruction (MOI) for different reasons. English is used as the MOI in most African countries, where it is chosen for political or economic reasons (Marie, 2013). Because in most African countries English is the second language, there is interference of the mother tongue in teaching in English as a MOI, which is one of the facts of the failure of that language policy. Most learners and teachers have low proficiency in English to be able to use it as a language of instruction; this affects their performance in different subjects taught in English (Marie, 2013). This case is also in East Africa, like in Tanzania, where EMI is used since secondary studies. Parents and students have negative perceptions of EMI and disagree that it must not be implemented in secondary schools. Only a few of them and policy support the EMI in secondary schools as an opportunity to improve language proficiency and quality of education at the same time; this may have an impact on the learners' performance (Swai, 2023, p. 17).

Rwanda is not an exception, where the majority of Rwandans use Kinyarwanda as a means of communication. This affects the use of English as a MOI in the education system. English is used only at school, most of the time

taught with the interference of Kinyarwanda (translation and code switching). Not only that, the change in language policy most of the time over a decade, different language backgrounds of the teachers, and family backgrounds of learners affect the use of the language of instruction.

According to Tabaro (2019), "Rwanda is an endoglossic country with Kinyarwanda as the mother tongue of 99.4% of Rwandans and plays a double role as a national and official language. There are three other official languages, such as Kiswahili, French, and English." Those languages are used in the Rwandan education system as subject lessons, but English is taught as a medium of instruction. This affected pupils' performance due to the poor English proficiency of teachers who were not prepared for the coming changes and the lack of teaching aids in the new language of instruction. As Adedokum (2011, p. 42) argues, "poorly trained English and untrained teachers contribute to the poor performance. Different teachers are struggling in teaching in English due to their low level of proficiency, shortage of textbooks, and unavailability of some learning materials. When teaching, they use grammar translation and other code switching, and a few of them still use Kinyarwanda, which makes some pupils not perform well in English and can lead to poor performance in other subjects."

As explained above, this study is focusing on learners' academic performance before and after the shifting of the MOI from Kinyarwanda to English in the lower level of primary schools in Rubavu District, tackling English and Science Elementary Technology (SET) teachers.

1.1 Statement of the Problem

Since 2020, when the government of Rwanda shifted the medium of instruction (MOI) from Kinyarwanda to English in lower-level primary schools, various measures and strategies have been implemented to enforce this language policy (Ndabaga et al., 2023, pp. 7–9). More resources (such as books and teaching aids) in English were introduced, and different capacity-building initiatives were offered to improve teachers' English proficiency. Continuous professional development (CPD) was conducted weekly for this purpose. In addition to government support, projects like the BLF project provided training for teachers, toolkits (including books and SD cards), English blended courses, support for creating an English-rich environment, and other strategies to enhance teachers' English skills. The Rwanda EQUIP approach, implemented in 761 Rwandan public schools, was designed for countries where English is a second language and used as the MOI. This approach assists unqualified teachers and those with low English proficiency in delivering lessons in English without using the mother tongue through well-prepared lesson plans, various activities, and content to help pupils develop their English skills. Motivational approaches such as songs, energizers, and cheers in English are also included. This approach addresses pupils' failures due to teaching content in their mother tongue while using English textbooks and assessments.

Most teachers assigned to teach using English in lower-level primary schools have Kinyarwanda and French backgrounds and many years of experience. Challenges include the unpreparedness of both teachers and learners for the new language policy, insufficient training for teachers with low English proficiency, and the unavailability of resources in English. The instability of the MOI between 2009 and 2020 resulted in a loss of focus on English in lower primary schools and reduced motivation to continue learning English. These factors have negatively impacted teachers' performance in teaching English, with pupils advancing to upper primary without basic English skills. This has adversely affected learning and performance in other subjects. Additionally, teachers with low English proficiency assigned to lower primary face difficulties delivering lessons in English. They often use the mother tongue in lesson delivery and then assess in English, which affects learners' performance.

1.2 Research Objective

To examine academic performance results of lower primary school pupils before and after the introduction of English as a medium of instruction.

II. LITERATURE REVIEW

2.1 Theoretical Framework

The study was founded on the behaviorist theory of second language acquisition. To understand this theory, it is crucial to define what constitutes a second language. According to Littlewood (2008, p. 502), a second language is any language learned after the initial language system has already been established. The Behaviorist Theory, developed by B.F. Skinner in the 1940s and 1950s, posits that language learning occurs through imitation and reinforcement. As Broad and Columbia (2020) describe, this theory suggests that children learn language by mimicking the speech of those around them, with accurate attempts reinforced by praise or successful communication. Yeoh et al. (2018) define behaviorism as focusing on observable and measurable aspects of human behavior, emphasizing that language acquisition involves stimulus-response (S-R) patterns. Menezes (2013) further explains that

behaviorism introduced a stimulus-response (S-R) theory, viewing language as a set of structures and acquisition as a process of habit formation.

Behaviorism significantly influences second language learning by highlighting the role of repetition and reinforcement. Ajdini (1974) notes that the theory views language learning as an efficient relationship characterized by stimulus-response interactions, where learning occurs through repeated practice and reinforcement. This perspective suggests that learning is observable behavior, and linguistic habits formed through consistent environmental reinforcement shape language acquisition (Broad & Columbia, 2020). The theory also accounts for innate cognitive processes and the transfer of patterns from the first language, which can lead to difficulties with more complex grammatical structures in the second language (Ajdini, 1974, p. 91). For instance, infants attempt to reproduce sounds and words they hear, receiving praise and reinforcement for their efforts, which supports their language development (Ajdini, 1974).

In the context of shifting the medium of instruction academic performance, the behaviorist theory offers valuable insights. Repetitive practice and reinforcement can facilitate this transition as teachers and students adapt to the new language environment. Teachers with limited English proficiency may use strategies learned through professional development to enhance their teaching, while students mimic these practices to improve their language skills. Both teachers and students engage in stimulus-response interactions, with teachers striving to master English and students working to acquire new skills, benefiting from reinforcement and rewards as results of improving the academic performance.

2.2 Empirical Review

Shifting the medium of instruction from Kinyarwanda to English in the lower primary grades has notable effects on students' academic performance. Initially, instruction in the mother tongue helps students grasp content more effectively, leading to better performance. Vumuriya et al. (2023) argue that using Kinyarwanda might make students too comfortable, potentially hindering their ability to learn other languages. This is supported by data from the Learning Achievement of Rwandan Schools 2021, which showed that 64.44% of P3 students met expectations in numeracy tests conducted in Kinyarwanda. The successful performance can be attributed to students' ability to receive additional support from parents and caregivers who also use Kinyarwanda (National Examination and School Inspection Authority [NESA], 2022, p. 15). Vumuriya et al. (2023) further note that administering exams in the local language reduces cognitive load, making the content more accessible to students and allowing them to focus on demonstrating their understanding.

However, following the shift to English, teachers initially continued delivering content in Kinyarwanda while providing notes in English. This approach did not fully align with the new medium of instruction, leading to challenges in student performance. The Learning Achievement of Rwandan Schools 2021 reported a significant decline in literacy test performance. Only 10% of P3 students met the expected score of above 66% in English literacy tests, a stark contrast to their numeracy performance (NESA, 2022, p. 14). Factors contributing to this decline include a lack of teaching aids, low English proficiency among teachers, inadequate student support environments, and insufficient parental involvement.

This situation is not unique to Rwanda. In Sri Lanka, poor performance in English national examinations is attributed to the local environment, where children from disadvantaged backgrounds have limited exposure to English (Mlay, 2010).While in China, students struggle with understanding simple English words despite content being taught in Chinese and texts being in English. This results in rote memorization of English texts rather than genuine comprehension, leading to poor performance (Yip et al., 2003, pp. 296-297). Similarly, in the Philippines, performance in math and science subjects taught in English is around 50% and 40%, respectively, due to teachers' inadequate English proficiency (Yip et al., 2003, pp. 298-299). Swai (2023) highlights that students often fail to understand the requirements of questions and that even those who do struggle to respond accurately due to low English proficiency.

On the other hand, there are some studies that support the positive academic performance of English as a medium of instruction. Dafouz & Camacho-Miñano (2016) suggest that “the difficulties students experience in English do not differ greatly from the problems found in L1, and when students gradually acquired more disciplinary content and presumably improved their English language competence." Children can learn and perform well in any language from an early age if there are no barriers other than language (Suyuti, 2019, p. 46–47). These ideas show how private schools often perform better in EMI due to better resources and teacher qualifications compared to public schools (Hilaire & Ferreira, 2015). There was another study done when two groups (EMI and non-EMI) of the same institution were assessed after learning the same academic subject with the same teacher, and the researcher obtained the same academic results (Dafouz & Camacho-Miñano, 2016, p. 16).

III. METHODOLOGY

3.1 Research Design

This study adopted the correlational research design and the mixed-methods approach. Through this approach, the researcher analysed primary data from school leaders, lower primary school teachers, and upper primary school teachers for their perceptions about the academic performance before and after shifting the MOI in lower-level primary schools.

3.2 Population

There are one hundred primary public schools in Rubavu District and 3000 teachers in one hundred schools across the district. The target population of 64 teachers and 5 school leaders who were selected by the non-probability sampling technique through purposive sampling by using the Yamane (1967) formula in an accessible population of 150 participants in 5 schools (who were selected through probability simple random sampling). The non-representative population was 20% of the representative population. Both representative and non-representative sample sizes were selected through probability-simple random sampling using the Yamane formula.

3.3 Sample Size

Since the population was large, simple random sampling was used to represent the selected population of 69 people, including the sample of 64 teachers and five school leaders (who represented the five selected schools) among the population of 150 participants in five schools.

3.4 Data Collection Instruments

The researcher constructed a questionnaire titled "*Learners performance before and after the shifting of medium of instruction.*" The questionnaires were in three categories:

Category one: reserved for English and other subjects that use EMI in lower primary teachers, where questionnaires focused on views about pupils' academic performance. Category two: reserved for English and Science Elementary and Technology (SET) upper primary teachers, where the questionnaire focused on the view of upper primary pupils who experience the shifting of mediums of instruction and are performing at the upper level of primary school. Category three: reserved for school leaders, where questionnaires focus on learners performance before and after shifting the medium of instruction. All questionnaires had closed-ended questions where the researcher provided alternatives or short responses to the questions and asked the respondents to select the answers that best described their opinions.

The documentary review focused on the analysis data on learners' performance in lower primary schools, three years before the shift of the MOI to English and three years after the shift of the MOI in lower primary schools. This review also analyzes data performance in upper primary on pupils who did Kinyarwanda as a MOI in lower primary and pupils on results of pupils learning English as a MOI. The results of the performance analysis are for English as a subject lesson and SET taught through English as a MOI**.**

IV. FINDINGS & DISCUSSION

4.1 Data Collection and Response Frequencies

Data were gathered from lower primary and upper primary English and SET teachers and school leaders of five schools in Rubavu District. Those are responses to the dissertation questions and group interviews. The study examined 69 respondents (64 teachers and 5 school leaders). Out of the 49 questionnaires distributed, only 45 were returned, of which 3 were incomplete and 4 were not. This narrowed down to 42 completed questionnaires, indicating a response rate of 91.8%, while five copies distributed to school leaders were filled out and returned to the researcher. Data were also gathered for the documentary review, which analyzed the performance of three years before the shifting of the MOI and three years after the shifting of the MOI.

Table 1

Response and Completion Rate of Questionnaires

Questionnaires	Frequency	Rate
Distributed	49	
Returned	45	
Incomplete	3	
Completed	42	
Response rate		91.87%
Completion rate		85.71%

To work out your survey response and completion rate, you can use the following formula: *Response rate = number of people who completed the questionnaire / total number of people you sent it to x 100.* Completion rate = the number of completed surveys divided by the number of survey respondents. The above results of completion rate (85.71%) and (91.87%) show that our questionnaire survey was very interesting for the respondents.

4.2 Data Presentation

4.2.1 Demographical Features of Respondents

The respondents' (teachers and school leaders) demographic structures were believed to be necessary because their aptitude to give reasonable evidential data on the study variables greatly depends on their demographical features. The demographic features of respondents (teachers and school leaders) solicited data on the samples, and this has been presented below, categorized into position, gender, age of respondents, level of education, and experience.

Table 2

Demographical Features of Respondents

Demographic Feature	Category	Frequency	Percentage
Gender	Female	37	54%
	Male	31	46%
Age	20-30 years old	30	42.25%
	31-40 years old	12	16.90%
	41-50 years old	9	12.68%
	51-60 years old	12	16.90%
	61-65 years old	5	7.04%
Level of Education	A2	55	78.57%
	A1	8	11.43%
	A0	5	7.14%
Teaching Experience	Less than 3 years	6	8.45%
	3-5 years	59	83.10%
	5-10 years	3	4.23%
	10-15 years	0	0%
	Over 15 years	0	0%
Language Background	English	46	65.71%
	French/Kinyarwanda	22	31.43%
Position	School Leaders	5	7.24%
	Upper Primary Teachers Lower Primary Teachers	18 46	26.08 % 66.66%

Data on the demographic features of respondents, including their position, gender, age, level of education, teaching experience, and language background, were collected and analyzed to understand the profile of participants in the study, which is crucial for assessing their ability to provide informed and relevant insights into the study's variables. The majority of respondents are female (54%), while males make up 46%. In terms of age, 42.25% of respondents are 20-30 years old, 16.90% are 31-40 years old, 12.68% are 41-50 years old, 16.90% are 51-60 years old, and 7.04% are 61-65 years old. Regarding educational qualifications, 78.57% of respondents hold an A2 level, 11.43% have an A1 level, and 7.14% have an A0 level. The teaching experience of respondents shows that 8.45% have less than 3 years of experience, 83.10% have 3-5 years, and 4.23% have 5-10 years, with no respondents having over 10 years of experience. In terms of language background, 65.71% of respondents have an English background, while 31.43% have a French/Kinyarwanda background. Finally, 7.24% of respondents are school leaders, 26.08 are upper primary teachers, and 66.66% are lower primary teachers.

4.2.2 Presentation and Discussions of Study Results

This study aims at investigating learners' performance before and after the shifting of mediums of instruction on learners' academic performance in lower-level primary schools, tracking English and SET lessons. Data are presented through questionnaires where they have both closed-ended questions and a documentary review that contain results of performance before and after the shifting of the MOI.

4.2.3 Results Performance of Pupils before and After the Shifting of Medium of Instruction

This section shows the views of respondents based on their experience with the performance of pupils before and after the shifting of the MOI. Tables 3, 4, and 5 provide a detailed overview of these views, capturing the perspectives of school leaders, upper primary teachers, and lower primary teachers, respectively.

Table 3

School Leaders' Views

Answer	Frequency	Percent
Learners performed better when instruction was given in Kinyarwanda medium of instruction.	1	20
Learners performed better when instruction is given in English as medium of instruction.	4	80
Learners' performances are the same before and after the shifting the medium of instruction	0	0
Total	**5**	**100**

According to Table 3, school leaders responded that 80% performed better when the MOI was given in English. They said that when learners got content in English, they adapted the system. When they were promoted to upper primary, they performed better because English was not new to them. On the other side, 20% of school leaders say that they performed better when the MOI was Kinyarwanda because they learned in a language they understood well.

Table 4

Upper Primary Teachers' Views

Answer	Frequency	Percent
Learners performed better when instruction was given in Kinyarwanda as medium of instruction.	2	22
Learners performed better when instruction given is in English as medium of instruction.	7	78
Learners' performances are the same before and after the shifting the medium of instruction	0	0
Total	**9**	**100**

According to Table 4 about how learners performed, 78% said that learners performed better when the MOI was shifted to English because they came from a lower when they were familiar with English. This helped teachers deliver content well and learners performed better. On the other side, 22% of upper primary teachers said that learners performed better when the MOI was Kinyarwanda because when they learned in their mother tongue in lower primary, they mastered the content well. It was easy to shift into English and proceed, which made pupils perform better.

Table 5

Lower Primary Teachers' Views

Answer	Frequency	Percent
Learners performed better when instruction was given in Kinyarwanda as medium of instruction.	9	32
Learners performed better when instruction given is in English as medium of instruction.	19	68
Learners' performances are the same before and after the shifting the medium of instruction.	0	0
Total	**28**	**100%**

According to Table 5 on the lower primary teacher views towards learners performance, 68% of teachers say that learners performed better when the MOI was given in English because it was easy for them due to facilitations that made them familiar with English, while 32% of teachers say that learners performed better when the MOI was in Kinyarwanda because pupils were taught and assessed in a language they understood better.

4.3 Comparison of Learners Performance before and After the Shifting of Medium of Instruction from Kinyarwanda to English Using T Test Formula.

This part shows the comparison of learners' performance before and after the shifting of the MOI based on two subjects, English and SET, in both the lower and upper levels of primary school.

4.3.1 T test Analysis for Comparison between Lower Primary Performance before the Shifting of Medium of Instruction (2017, 2018, 2019) and after Shifting of Medium of Instruction (2020-21, 2021-2022, 2022-2023)

Table 6

T-Test for ENGL Scores

Two-sample t test with equal variances					
Group	Observation	Mean	Standard Error	Standard Deviation	95% Conf. Interval
After	45	62.53333	1.34825	9.044335	59.81611 65.25055
Before	45	58.22222	1.464699	9.825498	55.27032 61.17413
Combined	90	60.37778	1.015802	9.636748	58.3594 62.39616
Difference		4.311111	1.990759		.3548966 8.267326

Difference = mean (after) – mean (before) t = 2.1656

Ho: difference = 0 degrees of freedom = 88

Ha: difference < 0 Ha: difference! = 0 Ha: difference > 0

Pr(T < t) = 0.9835 Pr (|T| > |t|) = 0.0330 Pr (T > t) = 0.0165

The mean score for ENGL after the shift in the MOI is 62.53, while before the shift it was 58.22. The position mean difference of 4.31 indicates an increase in ENGL scores after the shift. The p-value for the two-sided test (0.0330) is below the conventional threshold of 0.05, indicating that the observed difference in means is statistically significant. Thus, there is strong evidence to conclude that the shift in MOI has led to a significant increase in ENGL scores.

Table 7

T-Test for SET Scores

Two-sample t test with equal variances					
Group	Observation	Mean	Standard Error	Standard Deviation	95% Conf. Interval
After	45	34.64444	1.987881	13.33511	30.63813 65.25055
Before	45	28.51111	.7369211	4.943417	27.02594 29.99628
Combined	90	31.57778	1.103052	10.46447	29.38604 33.76952
Difference		6.133333	2.120077		1.920126 10.34654

Difference = mean (after) – mean (before) t = 2.8930

Ho: difference = 0 degrees of freedom = 88

Ha: difference < 0 Ha: difference! = 0 Ha: difference > 0

Pr (T< t) = 0.9976 Pr (|T| > |t|) = 0.0048 Pr (T > t) = 0.0024

The mean score for SET after the shift in the MOI is 34.64, while before the shift it was 28.51. The positive mean difference of 6.133 indicates an increase in SET scores after the shift. The p-value for the two-sided test (0.0048) is less than the typical significance level of 0.05, suggesting that the difference in means is statistically significant. Thus, there is strong evidence to conclude that the shift in MOI has led to a significant increase in SET scores.

4.3.2 T Test Analysis for Comparison between Upper Primary Performance before Shifting of Medium of Instruction (2017, 2018, 2019) and After the Shifting of Medium of Instruction (2020-21, 2021-2022, 2022-2023)

Table 8

T-Test for ENGL Scores

Two-sample t test with equal variances					
Group	Observation	Mean	Standard Error	Standard Deviation	95% Conf. Interval
After	45	49.51111	1.771441	11.88319	45.94101 53.08122
Before	45	46.26667	1.421125	9.533196	43.40258 49.13076
Combined	90	47.88889	1.142139	10.83528	45.61948 50.15829
Difference		4.244444	2.271035		-1.26876 7.757649

Difference = mean (after) – mean (before) t = 1.4286

Ho: difference = 0 degrees of freedom = 88

Ha: difference < 0 Ha: difference! = 0 Ha: difference > 0

Pr (T < t) = 0.9217 Pr (|T| > |t|) = 0.1567 Pr (T > t) = 0.0783

For the upper primary students, the analysis included 45 observations (scores) from the period before the instructional change (2017, 2018, 2019) and 45 observations from the period after the change (2020–2021, 2021–2022, 2022–2023). The mean ENGL score for the period before the change was 46.27, with a standard error of 1.421 and a standard deviation of 9.533. For the period after the change, the mean score was 49.51, with a standard error of 1.771 and a standard deviation of 11.883.

The combined analysis across both periods gives an overall mean score of 47.89, with a standard error of 1.142 and a standard deviation of 10.835. The difference in mean scores between the two periods is 3.24, indicating that the average score after the shift is higher than before the shift. However, this difference is not statistically significant, as the 95% confidence interval for the difference is -1.269 to 7.758. The t-test statistic is 1.429 with 88 degrees of freedom, yielding a p-value of 0.1567 for the two-tailed test. This p-value is above the conventional threshold of 0.05, indicating that the observed difference in means is not statistically significant.

In summary, the t-test analysis shows that while there is a slight increase in the average English scores for upper primary students after the shift in the MOI from Kinyarwanda to English, this increase is not statistically significant. The results suggest that the instructional change did not have a significant impact on the upper primary students' performance in English.

Table 9

T-Test for SET Scores

Two-sample t test with equal variances					
Group	Observation	Mean	Standard Error	Standard Deviation	95% Conf. Interval
After	44	45.72727	1.686084	11.18422	42.32696 49.12759
Before	45	40.55556	1.585781	10.63774	37.35962 43.75149
Combined	89	43.11236	1.182572	11.15637	40.76225 45.46247
Difference		5.171717	2.313329		.5737259 9.769708

Difference = mean (after) – mean (before) t = 2.2356

Ho: difference = 0 degrees of freedom = 87

Ha: difference < 0 Ha: difference! = 0 Ha: difference > 0

Pr (T < t) = 0.9860 Pr (|T| > |t|) = 0.0279 Pr (T > t) = 0.0140

For the SET scores, the analysis included 44 observations (scores) from the period after the instructional change (2020-2021, 2021-2022, 2022-2023) and 45 observations from the period before the change (2017, 2018, 2019). The mean SET score for the period before the change was 40.56, with a standard error of 1.59 and a standard deviation of 10.64. For the period after the change, the mean score was 45.73, with a standard error of 1.69 and a standard deviation of 11.18.

The combined analysis across both periods gives an overall mean score of 43.11, with a standard error of 1.18 and a standard deviation of 11.16. The difference in mean scores between the two periods is 5.17, indicating that the average score after the shift is higher than before the shift. This difference is statistically significant, as the 95% confidence interval for the difference (0.57 to 9.77) does not include zero, and the p-value for the test is 0.0279. This p-value is less than the conventional threshold of 0.05, meaning we reject the null hypothesis that there is no difference in mean scores before and after the shift.

In summary, the t-test analysis shows that there is a significant increase in the average SET scores for upper primary students after the shift in the MOI from Kinyarwanda to English. The results suggest that the instructional change had a positive and statistically significant impact on the upper primary students' performance in science and technology.

4.4 Discussion

Learners' performance before and after the shifting of MOI: 71% of respondents say that learners' performance was increased after the shifting of MOI. This is supported by t test results, which show that there is an increase in performance after the shifting of MOI than before in lower primary levels. For ENGL scores, the average increased from 58.22 before the shift to 62.53 after the shift. This positive mean difference of 4.31 is statistically significant, as evidenced by a p-value of 0.0330, indicating a notable increase in English performance following the instructional change. On the other hand, SET scores demonstrated the same trend. The average SET score increased from 28.51 before the shift to 34.64 after the shift. This positive mean difference of 6.13 is statistically significant, with a p-value of 0.0048, suggesting an improvement in science and technology performance post-transition. These results indicate that the shift in the MOI had a beneficial impact on English language performance and SET scores.

These data are supported by the NESA report on Learning Achievement in Rwandan Schools of 2021. In the P3 English Literacy test, only 10% of students met the expectation of an expected score above 66%. These poor

performances were affected by different challenges, such as shortage of appropriate teaching aids and textbooks, lack of trained teachers, and appropriate policy provisions (NESA, 2023). Since the issue was sorted out, there has been progress in learners' performance. As showed by this report of learning achievement in Rwandan schools, the national proficiency benchmarks on P3 pupils performed at 37.52% in English foundation literacy skills compared to LARS 2021, which was at 10.08%; in English reading fluency of a continuous text at 66.20%, they were able to read correctly at least 35 correct words per minute; and in English reading comprehension, they were able to answer correctly at least three questions out of five (NESA, 2023, p. 3). While in mathematics, 55.60 percent of the P3 learners assessed meet the national proficiency benchmarks, this performance is low compared to LARS 2021 (60.94), where there is a small difference of 5% (NESA, 2023, p. 33). Based on findings, there is an improvement in English performance between 2020 and 2023. When learners improve their English proficiency, it will also improve performance in other subjects learned in English as MOI.

Not only in lower primary results did performance increase, but also in upper primary results. For ENGL scores, the average increased from 46.26 before the shift to 49.51 after the shift. This positive mean difference of 3.24 indicates that the increase is not statistically significant by a p-value of 0.1567. The results suggest that the instructional change did not have a significant impact on the upper primary students' performance in English. On the other hand, there is a significant increase in the average SET scores for upper primary students after the shift of MOI from Kinyarwanda to English. The average SET score increased from 40.55 before the shift to 45.72 after the shift. This positive mean difference of 5.17 is statistically significant, with a p-value of 0.0279, suggesting that the instructional change had a positive and statistically significant impact on the upper primary students' performance in SET. These data are supported by the NESA report on Learning Achievement in Rwandan Schools of 2023, which shows the national proficiency benchmarks for P6 learners, where 60.66% performed better in English compared to LARS 2021, who performed at 38.55%, while 68.25% performed higher in LARS compared to LARS 2021, with 32.14% in mathematics (NESA, 2023, p. 5). These show that there is progress in good performance as more learners learn English as a MOI. And contradict other research that says that in African schools, primary school learners are native speakers of African languages, so they are not linguistically prepared to cope with content subjects in English due to limited mastery of EMI. For achieving academic success, contents must be taught in mother tongue and English taught as a subject (Hilaire & Ferreira, 2015).

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

In this study, the researcher analyzed the performance of lower-level primary schools before and after the shifting of MOI, specifically in Rubavu District. It also answers the following research question: "What are the academic performance results of lower primary school pupils before and after the introduction of English as a MOI?"

Through questionnaires, 29% of respondents showed that performance was better when MOI was in Kinyarwanda. Respondents say that performance was better when pupils were taught in their mother tongue in lower levels, but after being promoted to upper primary, they got lost due to the new language of instruction. Data from documents show that when MOI was Kinyarwanda, performance was better in Science Elementary Technology (the lesson chosen) and English as a subject, but after being promoted, the upper performance of English was still the same, but Science Elementary Technology (SET) decreased. After the shifting of the medium of instruction, 71% of respondents to questionnaires showed that their performance was better. Other respondents say that in the first year when the MOI was shifted, the MOI learners' performance was not better due to a lack of resources and the unpreparedness of teachers. When the issue was sorted, they performed better in lower primary and after being promoted in upper primary. Documentations show that the performance scores increased more when the MOI was shifted to English than before when it was in Kinyarwanda.

Based on comparison of both research questions compared to the learners' performance before and after the shifting of MOI through T test data. In lower primary, the English and SET scores performance increased after the shifting of MOI compared to before. Even in the upper level of primary school learners, the English and SET scores performance increased after the shifting of MOI than before.

5.2 Recommendations

After drawing conclusions based on this study's findings, it is worth making some recommendations related to the objectives and the findings of the study. When there's a shift in MOI, it's better to plan preparation on all sides and start from P1, then move forward. Stability of MOI by avoiding more changes of MOI because it affects teaching and learning and learners performance. To avail enough teaching materials, including textbooks, charts, and audiovisuals in the target language. More English capacity buildings for the teachers will create more platforms to improve their English proficiency. As recommended, early transition is better because it supports pupils to develop second language

competency from an early age while at the same time mastering basic skills in the target language. Refresher capacity building on teaching pedagogy for updating teachers about teaching techniques.

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