



Effects of English language skills achievement on the performance of learners in science and elementary technology in rural public primary schools in Rwanda

A case of Nyamasheke district, Rwanda

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Abstract

The purpose of this study was to examine the effects of English Language Skills achievement on primary school Learner performance in science and elementary technology in rural public schools in Nyamasheke District, Rwanda. The research's specific objectives were to determine the English Language Skills Achievement among Learners in Nyamasheke district rural primary schools, analyze the primary Learner performance level in Science and Elementary Technology in rural public schools in Nyamasheke district, and establish the relationship between English language skills achievement and the performance of learners in Science and Elementary Technology in rural public primary schools in Nyamasheke District. The study would be significant for the government, education policymakers, and school managers, development partners in the field of education, parents, and guardians, among others. The study adopted a descriptive survey design and target 471 people, including 296 Teachers, 158 Head teachers, 15 Sector education Inspectors, one District Education Officer in charge of nursery, primary, and adult literacy, and one District Director of the Education Unit. A sample size of 217 respondents including 140 Science and Elementary Technology teachers, 60 head teachers, 15 Sector Education Inspectors, district education officer in charge of nursery, primary, and adult literacy were used. Stratified random sampling was used for teachers and head teachers to ensure representation from diverse school contexts and Sector Education Inspectors, District education officer, and District director of education, purposive sampling was appropriate as they hold key educational leadership roles in the district. Data was collected using questionnaires and interviews with a sample of school administrators and teachers from Nyamasheke district public primary schools. Data was collected and analyzed using the descriptive and inferential statistics program, and the findings were presented as charts and tables for interpretation. Pearson correlation coefficients were used to establish the relationship between English Language Skills Achievement and Learners' performance in Science and Elementary Technology in Rwandan rural public primary schools. Results to the first objective felt 71.3% strongly disagreed that English was used, 72.5% accepted that students have a strong command of English language skills while 68.4% disagreed with their participation in discussions and ask questions in English during science and technology lessons. Results top the second objective felt that 67.8 did not accept that they consider the academic performance of students in science and elementary technology in their school to be satisfactory, 64.6% show a strongly agreement, 60.0% strongly agreed that, students show enthusiasm in science and elementary technology subjects, 67.0%. Results to the third objective indicate that that English listening skills was associated with improved scores in SET assessments ($r=0.473$, $value=.007$). This is significant affective an improvement in score since the p -value was <0.05 . Contrary to increased class participation ($r=0.448$, p -value=.789) and with improved homework at ($r=.369$, p -value=.865) as well as with completion rate at ($r=.455$, p -value.739). English writing skills was associated improved scores in SET assessments ($r=0.430$, p -value=.078). The researcher recommends the Ministry of Education should take this point into consideration by providing the necessities in teaching and learning English language. More

textbooks and other teaching aids should be provided in consideration of the number of learners in the classrooms. The study recommends future researches to carry out studies in the following subject:

Keywords: *Medium of Instruction, Rural Schools, Academic Performance, English Language Skills Achievement Science and Elementary Technology (SET) First Language*

1.0 Introduction

Furthermore, a research did by the Rwanda Education Board (REB) on student learning outcomes in Sciences and Mathematics (REB, 2019) shows that Learners have a poor understanding of scientific and mathematical concepts. The survey revealed that the great majority of Rwandan primary Learners struggle with core science concepts, underlining the significance of effective English language learning in order to enhance science comprehension (NISR, 2020). The Spotlight on Basic Education Completion and Foundational Learning in Rwanda 2022 collected data on language practices in the 12 schools visited demonstrated that 83% of instructors utilized Kinyarwanda as the primary language of teaching, which is against the language policy (Li & Wu, 2015). From 2019, the language policy specified that all children should be educated in English; yet, many teachers do not know English. Students were observed using Kinyarwanda to speak in the classroom (92%). Furthermore, 75% of the courses observed used learning resources in Kinyarwanda (25%) used materials in English. Observations show that a substantial minority of learners do not achieve proficiency in reading and mathematics; LARS III, which was done in 2017/18, revealed that only 55% of Primary 3 students and 56% of Primary 6 students were assessed at or above target. Debates about causes of students' science and elementary technology failures in Rwanda's rural primary schools do not indicate that a lack of English language skills achievement is the cause of academic decline. However, because English is the instruction's language and some primary school teachers lack the necessary abilities to teach in English or mix English and Kinyarwanda while students have to study in English, it can hinder the improvement of English language skills and lead to failure in science and elementary technology. All the above considerations led the researcher to look examine how English language skills achievement affects the performance of Rwandan rural primary students in science and elementary: A Case of Nyamasheke District. The research objectives serve as the guiding principles for this study, outlining the general and specific objectives that will shed light on the crucial relationship between English language skills achievement and student performance in Science and Elementary Technology within rural public primary schools in Nyamasheke District, Rwanda. The following specific objectives guided this study:

- i. To determine the Learners' English Language use level in rural public primary schools in Nyamasheke District.
- ii. To analyze the Learners' performance level in Science and Elementary Technology in rural public primary schools in Nyamasheke district.
- iii. To establish the relationship between English Language Skills Achievement and performance in science and elementary technology classes among Learners in rural public primary schools of the Nyamasheke district.

2.0 Review of Related Literature

2.1 Empirical Literature

It does this by reviewing a number of pertinent resources, including dissertations, books, journals, websites, and publications.

2.1.1 English Level of Use as a Medium of Instruction in Primary Schools

There is a noteworthy shift in the academic fields of science, such as mathematics, geography, and medicine, from English as a foreign language (EFL) to English as a medium of instruction (EMI). EMI is increasingly employed in primary, secondary, and university education in both public and private settings (Julie, 2014). The education and decision-making processes of young people in non-English-speaking countries are significantly influenced by this trend. A study conducted by Julie (2014) examined the current state of EMI in various countries, the subjects covered, and the changes in education across 55 English-speaking countries worldwide. The findings revealed that English language proficiency is often insufficient to effectively teach subjects. For example, in Indonesia, teachers may lack the necessary English proficiency, and even primary school teachers may have lower English proficiency levels than expected. Similarly, in Ethiopia, while teachers are considered qualified if they have graduated from college or university, limited English proficiency remains an issue.

2.1.2 Primary School Science and Elementary Technology

The attitudes of educators towards science and their perspectives on teaching science are important areas of study. Teachers' attitudes towards science are influenced by their experiences in teaching students. Percaster *et al.* (2015) conducted a study with 174 students aged 15 to 16 years and discovered that the observed students had a good attitude toward science. However, teachers need to address their attitudes and adopt teaching strategies that align with effective scientific inquiry. The attitudes of elementary teachers toward teaching science and their preparedness to do so have been of interest to academic researchers (Tsan & Kai-Ying, 2015). These studies suggest providing various activities that cater to the abilities of different students, including incorporating hands-on experiments. The significance of boosting science knowledge, education, and skills in schools has long been recognized in Spain and across the world (Rosales Sánchez, Rodriguez Ortega, & Romero Ariza, 2020). This interest is motivated by the idea that scientifically literate people are more likely to live in prosperous societies and by the requirement for high-quality international tests, like the PISA and TIMSS.

2.1.3 English Language Proficiency and Class Assessment in Primary

English language proficiency is a pivotal factor in shaping students' performance on class assessments, especially in science subjects at the primary level. As highlighted in a study by Adams and Simmons (2016), students' grasp of English language skills significantly influences their comprehension of science concepts and their ability to express their understanding. When students have a firm

foundation in English language skills, they can effectively engage with complex scientific terminology, understand instructions, and articulate their responses clearly. Conversely, limitations in language skills can hinder their performance in science assessments, as they may struggle to interpret questions and demonstrate their knowledge. Therefore, enhancing English language skills in primary education is not only fundamental for academic success in science but also contributes to fostering a deeper understanding of scientific concepts (Adams & Simmons, 2016).

2.1.4 English Language Skills and Science Achievement

Research shows that children's competency in the English language and their achievement in science and elementary technology are positively correlated. Kim and Elder (2019), for example, performed a study in South Korea and discovered that English language competency affected science success favorably. Students with higher levels of English language competence outperformed those with lower levels of proficiency in the English language. Similarly, in a study done in Taiwan by Lee and Kuo (2019), English language skill was revealed to be positively related to science success.

2.1.5 English Language Skills and Technology Achievement

Alavinia and Tavakoli (2019) looked at the relationship between high school students' technical accomplishment and their command of the English language in Iran. The study found a significant link between English language proficiency and the development of technology. In technical courses, students who spoke English more fluently did better. Another study conducted in Saudi Arabia by Alghamdi (2017) found a connection between technical competence and English language fluency.

2.2 Theoretical Framework

Theoretical considerations for this study were founded on Vygotsky's sociocultural theory and Cummins' idea of language interdependence. Vygotsky's sociocultural theory stresses the function of language in learning and cognitive development, whereas Cummins' linguistic interdependence hypothesis contends that language competency is required for cognitive development and academic achievement.

2.2.1 Vygotsky's Sociocultural Theory in Learning

Vygotsky's sociocultural theory states that, knowledge is constructed through interpersonal interactions and group participation, highlighting the social and cultural aspects of learning. According to this theory, individuals learn best when they engage with others who possess greater knowledge or expertise.

The zone of proximal development (ZPD) is defined in Vygotsky's theory as a key concept that distinguishes between what a learner can accomplish on their own and what they can accomplish with the assistance of a more experienced individual. Learning occurs within this zone, where students are challenged to go beyond their current level of understanding or competence with the support of a more skilled person. Another key part of Vygotsky's theory is scaffolding, which the aid is offered by a more competent individual to facilitate a student's advancement within the ZPD. The level of support gradually decreases as the student becomes more confident and independent. Vygotsky's theory also emphasizes the role of cultural tools, such as language, symbols, and technology, in learning. These cultural tools not only shape the meaning of communication but also influence thinking and learning processes.

2.2.2 Cummins' Linguistic Interdependence Hypothesis and Academic Achievement

According to Cummins' language interdependence theory, a student's competency in both their first and second languages can benefit their academic achievement. The idea is that L1 to L2 competency can be transferred, and L2 to L1 competency can be transmitted, which will improve academic performance in both languages. According to research, L1-fluent Learners typically perform better academically in L2 non-fluent students. This is so that the academic and cognitive abilities acquired in the L1 can be applied to L2. The ability to transfer talents between languages may not happen naturally, and it can be influenced by things including socioeconomic situation, educational background, and language proficiency level. To ensure that students learning in a second language have the skills essential to thrive academically, it is also crucial to give them the proper language support.

2.3 Conceptual Framework

A conceptual framework serves as an integrated system that helps researchers systematically organize and articulate the relationships, tensions, and contextual factors that shape the research environment and phenomena of interest (Ravitch & Riggan, 2016). It represents the expected relationships between the variables or qualities being investigated. The relationship is presented in Figure 2.1

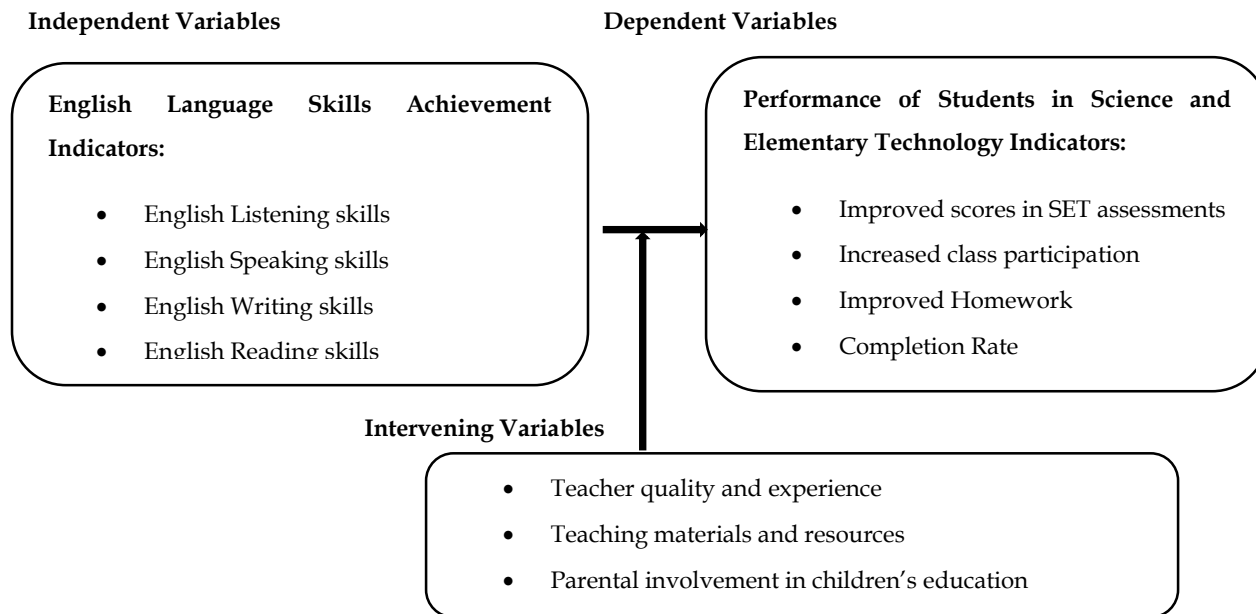


Figure 2. 1 Conceptual Framework

Source: Researcher (2023)

Students' use of English has a significant effect on their performance in science and elementary technology. Students must have the skills to write, speak, read, and listen to be able to comprehend concepts of science and elementary technology subject matter; these four skills of language play a big role in classroom communication and thus affect the performance of students in Science and Elementary Technology since the teaching-learning process is done by the interaction between teacher and students. In this regard, if both teachers and Learners do not use English effectively as a language used in science and elementary technology, it results in poor academic performance. The teachers' usage of English is likely to affect the students' performance in Science and Elementary Technology. This conceptual framework suggests that English language skills achievement has a direct effect on students' performance in science and elementary technology. This study shows how these variables interact to influence students' performance in SET in Nyamasheke district rural public primary school.

3.0 Research Methodology

The research's ethical implications were investigated. This research was done using a mixed methods approach combining descriptive survey and correlational research designs to comprehensively investigate the effects of English Language Skills Achievement on Learners' performance in Science and Elementary Technology among rural public primary schools in Rwanda. A descriptive survey research design, according to Jackson (2016), is a type of study that combines qualitative and quantitative research methodologies to gain a comprehensive understanding. A descriptive research design will serve to provide a detailed and systematic account of English language skills achievement among learners as well as their academic performance in science and elementary technology. It involved collecting data from various primary schools, including assessing language proficiency levels and academic performance indicators. The correlation research design facilitated the exploration of potential relationships between English language skills achievement and learners' performance in science and elementary technology.

3.2 Target Population

All public elementary schools in the Nyamasheke district will serve as this study's target population. According to the Ministry of Education's 2022 School Census, there are 158 public primary schools. Thus, the target population in this study will be 471, composed of one District Director of Education, 1 district education officer in charge of nursery, primary, and adult literacy, 15 Sector Education Inspectors, 158 head teachers, and 296 SET teachers from public primary and government-aided schools in Nyamasheke District. The choice of this population within the primary schools was necessitated by the following factors: Firstly, the Nyamasheke district is located in rural areas where people have limited exposure to English. The second reason teachers were picked is that they are likely to be aware of the difficulties that come with utilizing English as an instructional language and that they teach their lessons in English. Head teachers, SEIs, DEO in charge of Nursery, Primary, and Adult Literacy, and DDE were chosen because they are likely to understand the challenges of the educational process as educational leaders. Based on the aforementioned criteria, Growth for Knowledge (2013) proposed a formula to determine the sample size, taking into account the level of confidence of 5% and the level of precision or sampling error of 5%. His formula was represented in the following way: $n = \frac{N}{1+N(e)^2}$, the target population is represented by N, the sample size is represented by n, and the margin of error is represented by e. In this study, the same formula was applied to determine the sample size.

$$n = \frac{471}{1+471(5\%)^2} = 217$$

All 15 SEIs and 60 head teachers of these schools were included in the sample. The inclusion of teachers, head teachers, Sector Education Inspectors (SEIs), District Education Officer (DEO), and District Director of Education (DDE) in the research is vital for

obtaining a holistic perspective on the research topic. Teachers provide insights into the classroom-level dynamics affecting English language skills achievement and student performance, head teachers offer knowledge on school-level factors, SEIs bring a sector-wide perspective, and DEO and DDE provide insight into district-level policies and strategies. A mixed-methods approach, utilizing questionnaires and interviews effectively captured the diverse perspectives of these stakeholders, ensuring a comprehensive understanding of the influences on student performance in Science and Elementary Technology within Nyamasheke District's primary schools. Data Collection Techniques are essential tools for gathering empirical data in research. They encompass a variety of methods chosen based on the research's objectives and data requirements. Selecting the right techniques is critical for accurate and relevant data, which directly affects research quality and reliability. Careful consideration and application of these techniques are crucial in the research process.

Statements	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Mean	Std
	N	%	N	%	N	%	N	%	N	%		
The students in my class use English effectively as a means of communication.	154	71.3	33	19.9	23	5.8	5	2.3	1	0.6	1.4	0.7

Descriptive statistics were utilized to describe the questionnaire data, while theme analysis was used to evaluate the interview data. The descriptive statistics provided a quantitative summary of the data, while the thematic analysis identified themes and patterns in the qualitative data.

Descriptive statistics were applied in this research to calculate measures like the mean, median, and standard deviation of students' English language skills and academic performance scores. Inferential statistics were applied to this research to determine if there is a statistically significant relationship between English language skills achievement and academic performance among students in Nyamasheke District.

4.0 Research Findings and Discussions

4.1 Determination of Learners' English Language Use Level in Rural Public Primary Schools in Nyamasheke District

The first objective of the study determined learners' English language use level in rural public primary schools in Nyamasheke District. To achieve this objective,

Table 4. 1 Learners' English Language Use Level in Rural Public Primary Schools

Students in my class have a strong command of English language skills.	157	72.5	50	23.2	4	1.8	4	1.8	1	0.6	1.3	0.7
Students in my primary class use English language skills in their written assignments and presentations.	154	70.8	44	20.5	14	6.4	4	1.8	0	0.0	1.4	0.7
Students in my class confidently participate in discussions and ask questions in English during science and technology lessons.	148	68.4	42	19.3	21	9.9	4	1.8	1	0.6	1.4	0.7
Students in my class actively seek opportunities to improve their English language skills	153	70.8	44	20.5	14	6.4	4	1.8	1	0.6	1.4	0.7
Students in my class demonstrate a good understanding of scientific and technological concepts presented in English	143	66.1	48	22.2	16	7.6	6	2.9	3	1.4	1.2	1.5

Source: Primary Data (2023)

Findings from Table 4.3 demonstrate responses provided on the level of English language skills achievement. Therefore, 71.3% strongly disagreed that in their school students in my class use English effectively as a means of communication at mean response of 1.3 with a standard deviation equal to 0.7, moreover, 72.5% of participants did not accept that students in have a strong command of English language skills, 70.8% disagreed that in schools, students in primary class use English language skills in written assignments and presentations, Finally, 68.4% disagreed that in their school students in my class confidently participate in discussions and ask questions in English during science and technology lessons. Furthermore, 70.8% of respondents with a mean of 1.4 and standard deviation of 0.7 did not accept that students in class actively seek opportunities to improve their English language skills. Finally, 66.1% of respondents with a mean response of 1.5 and standard deviation of 0.8 strongly disagreed with the fact that students in my class demonstrate a good understanding of scientific and technological concepts presented in English. An interview with DDE and DEO remarks that *English language skills achievement levels among students in rural primary schools in Nyamasheke District is poorly used and attained*

4.2 Analysis of Learners’ Performance Level in Science and Elementary Technology In Rural Public Primary Schools in Nyamasheke District

This section provides data on learners’ performance level in science and elementary technology in rural public primary schools in Nyamasheke District.

Table 4. 2 Learners’ Performance Level in Science and Elementary Technology in Rural Public Primary Schools in Nyamasheke District

Statements	Strongly Disagree		Disagree		Not Sure		Agree		Strongly Agree		Mean	Std
	N	%	N	%	N%	N	%	N	%			
The academic performance of students in science and elementary technology in my school to be satisfactory	146	67.8	52	24.0	10	4.7	8	3.5	0	0.0	1.4	0.7

Students participate in hands-on experiments and activities in Science and Elementary Technology	140	64.6	54	25.1	15	7.0	7	2.9	0	0.0	1.4	0.7
The students in show a keen interest in learning science and elementary technology.	143	66.1	48	22.2	16	7.6	7	2.9	2	1.2	1.5	0.8
Students show enthusiasm and interest in Science and Elementary Technology subjects.	131	60.8	63	29.2	15	7.0	4	1.8	3	1.2	1.5	0.7
Students in class effectively apply scientific and technological knowledge in real-world contexts.	146	67.8	53	24.0	9	4.7	8	3.5	0	0.0	1.4	0.7

Source: Primary Data (2023)

Results the study through the questionnaire, the researcher demonstrated the Learners' performance level in science and elementary technology in rural public primary schools in Nyamasheke District, information is given in Table 4.4 which demonstrated that 67.8 of participants denied the overall academic performance of students in science and elementary technology, 64.6% show a strongly disagreement, students in primary school actively participate in hands-on experiments and activities in science and elementary technology. Moreover, 66.1% refused that students in class show a keen interest in learning science and elementary technology, 60.0% of respondents strongly disagreed that students in my primary school show enthusiasm and interest in science and elementary technology subjects. Finally, 67.8% of respondents strongly disagreed that they believed that students in their class effectively apply scientific and technological knowledge in real-world contexts. From the point of view in interview held with DDE and DEO says: *the academic performance of students in Science and Elementary Technology evolved in the context of language proficiency in recent years, but there is an increase and further change in science and elementary technology learning outcomes"*

4.3 Relationship Between English Language Skills Achievement and Performance in Science and Elementary Technology Classes Among Learners in Rural Public Primary Schools of The Nyamasheke District.

The study established the relationship between English Language Skills Achievement and performance in science and elementary technology classes among Learners in rural public primary schools of the Nyamasheke district.

Table 4.3 Influence of English Language Skills and Students' Academic Performance

Source: Primary Data (2023)

Statements	Strongly Disagree		Disagree		Not Sure		Agree		Strongly Agree		Mean	Std
	N	%	N	%	N	%	N	%	N	%		
Students in class who have a greater degree of English language skills achievement do better in science and elementary technology.	134	62.0	64	29.8	13	5.8	5	2.3	0	0.0	1.4	0.7
Students with stronger English language skills demonstrate better comprehension of scientific concepts and technological applications.	115	66.7	78	22.2	14	7.0	9	3.5	0	0.0	1.5	0.8
Success in science and elementary technology is positively correlated with mastering the English language.	129	59.6	70	32.2	13	5.8	4	2.3	0	0.0	1.4	0.8
Improving English language skills achievement improves student performance in science and elementary technology in assessments and homework.	152	70.2	46	21.1	14	6.4	4	2.3	0	0.0	1.5	0.7

Results presented in Table 4.5 demonstrated that 62.0 % disagreed that students in class who have a greater degree of English language skills achievement do better in science and elementary technology.; 66.7% of respondents disagreed that students with stronger English language skills demonstrate better comprehension of scientific concepts and technological applications; 59.6% respondents disagreed that success in science and elementary technology is positively correlated with mastering the English language, 91.8% show a disagreement on improving English language skills achievement improves student performance in science and elementary technology in assessments and homework, 70.2 of respondents disagreed that Students who struggle with English have difficulty comprehending and performing well in science and elementary technology assessment and homework. Qualitative information from an interview with the DEO of Nyamasheke agrees "the existence of a positive changed and clear contribution of English language skills achievement on students' performance in Science and Elementary

Table 4. 4 Correlation Analysis

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

Source: Primary Data (2023)

			Improved scores in SET assessments	Increased participation	class Improved Homework	Completion Rate
English Listening skills	Listening	Pearson Correlation	.473**	.448**	.369**	.455**
		Sig. (2-tailed)	.007	.789	.865	.739
		N	216	216	216	216
English Speaking skills	Speaking	Pearson Correlation	.435**	.474**	.402**	.472**
		Sig. (2-tailed)	.578	.556	.868	.468
		N	216	216	216	216
English Writing skills	Writing	Pearson Correlation	.868	.426**	.396**	.474**
		Sig. (2-tailed)	.078	.012	.224	.400
		N	216	216	216	216
English Reading skills	Reading	Pearson Correlation	.413**	.396**	.358**	.480**
		Sig. (2-tailed)	.000	.000	.000	.000
		N	216	216	216	216

Results presented in Table 4.6 demonstrated the correlation matrix between English language skills achievement indicators (English Listening skills, English Speaking skills, English Writing skills and English Reading skills) and dependent variables (Improved scores in SET assessments, increased class participation, improved homework and completion rate) results indicate that English Listening skills was associated with Improved scores in SET assessments ($r=0.473$, $p=0.007$). This is significant affective an improvement in score since the p -value was <0.05 . Contrary to increased class participation ($r=0.448$, $p=0.789$) and with improved homework at ($r=0.369$, $p=0.865$) as well as with completion rate at ($r=0.455$, $p=0.739$). The findings reveal that teaching in English Speaking skills was associated with level of Improved scores in SET assessments ($r=0.434$, $p=0.578$), increased class participation ($r=0.474$, $p=0.556$), improved homework completion at ($r=0.402$, $p=0.868$) and completion rate ($r=0.472$, $p=0.468$). Therefore, English Writing skills was associated improved scores in SET assessments ($r=0.430$, $p=0.078$), increased class participation at ($r=0.426$, $p=0.012$), improved homework at ($r=0.396$, $p=0.224$) and with completion rate at ($r=0.474$, $p=0.400$). English Reading skills was linked with improved scores in SET assessments ($r=0.413$, $p=0.000$), and increased class participation ($r=0.396$, $p=0.000$) and improved homework at ($r=0.358$, $p=0.000$), and with completion rate at ($r=0.480$, $p=0.000$). Interviews with the DDE and Deo remark some *external factors or interventions, such as teacher quality, teaching materials, or parental involvement has significantly impacted student performance in Science and Elementary Technology in Nyamasheke District*”.

Table 4.5 Regression Coefficient between Independent Variables and Improved Scores in SET Assessments

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% of CI for	
	B	Std. Error	Beta				
(Constant)	.732	.114		6.423	.000	.507	.958
English Listening skills	.334	.122	.340	2.740	.007	.093	.575
English Speaking skills	.062	.230	.061	.269	.789	.392	.515
English Writing skills	.038	.224	-.038	.171	.865	.481	.404
English Reading skills	.053	.160	.055	.333	.739	.263	.370

a. Dependent Variable: Improved scores in SET assessments

b. Predictors: (Constant) English Listening skills, English Speaking skills, English Writing skills, English Reading skills

Source: Primary Data (2023)

Findings in Table 4.7 from respondents of this study presented that, the regression equation is $(y = ax + b + \epsilon)$ thus y: dependent variable as Improved scores in SET assessments, x: independent variable as) English Listening skills, English Speaking skills, English Writing skills, English Reading skills thus $y = (\text{Beta}) x + .732 + \epsilon$. Despite, there is 95 % confidence that the change in English language skills achievement can change on improved scores in SET assessments, somewhere between 50.7% and 92.8%.

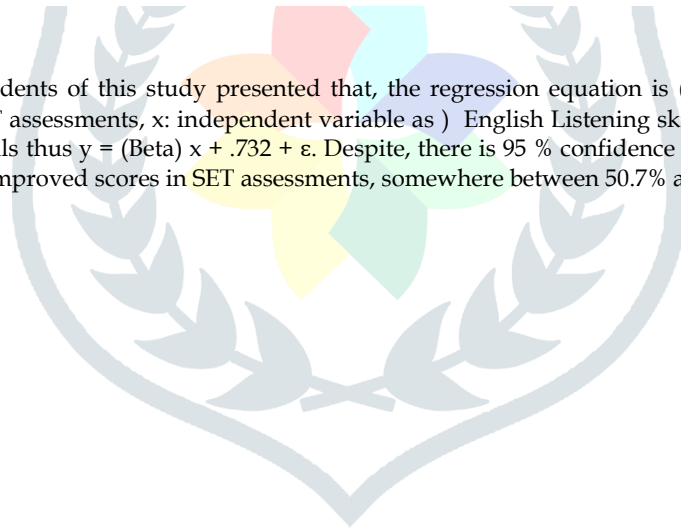


Table 4. 6 Regression Coefficient between Independent Variable and Increased Class Participation

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig	95% of CI		Source: Primary Data (2023)
		B	Std. Error	Beta					
1	(Constant)	.827	.134		6.163	.000	.562	69.5	The findings in the Table 4.8 from the respondent s of this study presented that, the regression equation is (y = ax + b + ε) thus y: dependent variable as level of Increased class participatio n, x: independen t variable as English Listening skills, English Speaking skills, English Writing skills, English Reading skills thus y = (Beta) x +
	English Listening skills	.080	.144	.071	.557	.578	.204	.364	
	English Speaking skills	.160	.271	.139	.590	.556	.375	.694	
	English Writing skills	.044	.264	.038	.166	.868	.477	.564	
	English Reading skills	-.137	.189	-.123	-.727	.468	-.509	.235	

a. Dependent Variable: Increased class participation

b. Predictors: (Constant) English Listening skills, English Speaking skills, English Writing skills, English Reading skills

.872 + ε. Despite, there is 95 % confidence that the change in English language skills achievement can make change on the increased class participation, somewhere between 56.2% and 69.5%.

Table 4.7 Regression coefficient between Independent Variable and Improved Homework

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% of CI	
	B	Std. Error	Beta				
1 (Constant)	.791	.114		6.907	.000	.565	.887
English Listening skills	.217	.123	.218	1.771	.078	-.025	.459
English Speaking skills	.589	.231	.577	2.554	.012	.134	1.045
English Writing skills	-.274	.225	-.270	-1.221	.224	-.718	.169
English Reading skills	-.136	.161	-.137	-.844	.400	-.453	.182

a. Dependent Variable: Improved Homework

b. Predictors: (Constant) English Listening skills, English Speaking skills, English Writing skills, English Reading skills

Source: Primary Data (2023)

Findings in Table 4.7 from respondents presented that, the regression equation is ($y = ax + b + \epsilon$) thus y: dependent variable as Improved Homework, x: independent variable as English Listening skills, English Speaking skills, English Writing skills, English Reading skills thus $y = (\text{Beta})x + .791 + \epsilon$. Despite, there is 95 % confidence that the change in English language skills achievement can make change on Improved Homework, somewhere between 56.5% and 88.7%.

Table 4. 8 Regression coefficient between Independent Variables and Completion Rate

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% of CI	
	B	Std. Error	Beta				
1 (Constant)	.725	.121		5.991	.000	.486	.964
English Listening skills	.189	.130	.179	1.461	.146	-.067	.445
English Speaking skills	.044	.244	.040	.179	.858	-.438	.525
English Writing skills	.098	.238	.091	.414	.680	-.371	.568

English Reading skills

.268 .170 .255 1.576 .117 -.068 .604

a. Dependent Variable: Completion Rate

b. Predictors: (Constant) English Listening skills, English Speaking skills, English Writing skills, English Reading skills

Source: Primary Data (2023)

Findings in Table 4.8 from respondents of this study presented that, the regression equation is ($y = ax + b + \epsilon$) thus y: dependent variable as Completion Rate, x: independent variable as English Listening skills, English Speaking skills, English Writing skills, English Reading skills thus $y = (\text{Beta})x + .725 + \epsilon$. Despite, there is 95 % confidence that the change in English language skills achievement can make change on Completion Rate, somewhere between 48.6% and 94.6%.

5 Discussion of Findings

The researcher compares and contrasts the study findings with previous studies based on specific research objectives of the study. This helps the researcher to make generalization of results.

5.1 English Language Skills Achievement

This first objective of the study determined Learners' English Language use level in rural public primary schools in Nyamasheke District. Findings demonstrates that 71.3% strongly agreed that English was effectively used in rural public primary schools, 72.5% accepted that students have a strong command of English language skills while 68.4% agreed with their participation in discussions and ask questions in English during science and technology lessons. Furthermore, 70.8% accepted that the need to improve their English language skills. The present study did not reject observation and remarks of Julie (2014) who examined the current state of EMI in various countries, the subjects covered, and the changes in education across 55 English-speaking countries worldwide. The findings revealed that English language proficiency is often insufficient to effectively teach subjects where, teachers may lack the necessary English proficiency, and even primary school teachers may have lower English proficiency levels than expected.

5.2 Performance of Students in Science and Elementary Technology

Results to the second objective concerning the analysis of the performance of students in science and elementary technology indicates that 67.8% accepted that they consider the overall academic performance of students in science and elementary technology in their school to be satisfactory, 64.6% show a strongly agreement, students in my primary school actively participate in hands-on experiments and activities in science and elementary technology, 60.0% strongly agreed that, Students in my primary school show enthusiasm and interest in Science and Elementary Technology subjects, 67.8% strongly agreed that they believed that students in their class effectively apply scientific and technological knowledge in real-world context. Results concurs with the necessity of improved teaching through the Elts Primary Six (Percaster *et al.* 2015) conducted a study with 174 students aged 15 to 16 years and discovered that the observed students had a good attitude toward science. However, teachers need to address their attitudes and adopt teaching strategies that align with effective scientific inquiry.

5.3 Relationship between English Language Skills Achievement and Performance of Students in Science and Elementary Technology

The findings reveal that indicate that English listening skills was associated with improved scores in SET assessments with 0.473, Increased class participation (0.448) Improved Homework at .369 and with completion rate at .455. The findings reveal that teaching in English Speaking skills was associated with level of improved scores in SET assessments (0.434), Increased class participation (0.474), improved homework completion at .404 and Completion Rate (0.472). Therefore, English writing skills were associated improved scores in SET assessments (0.430), increased class participation at 4.26, improved homework at .39% and with completion rate at .474. An English reading skill was linked with improved scores in SET assessments (0.413), and increased class participation (0.396) and improved homework at .358 and with completion rate at .485. Therefore, this was a research that assessed the level of English performance that was in Tanzania education system supported by Widiati *et al.* (2018) who revealed that student-centered teaching methods had a favorable impact on both academic achievement and English language proficiency. In a study conducted by Cooper *et al.* (2018), it was noted that homework completion is associated with improved academic performance, particularly in subjects like English where language skills are integral. Higher English language skills allow students to comprehend and complete homework assignments more effectively, ultimately enhancing their academic achievement. Active engagement in class has been found to positively impact learning outcomes, growth mindset, and student dedication (Beattie, 2020).

6.0 Conclusions and Recommendations

Reconsidering the results from the present study discussed in chapter and the contrast made with past researches, the researcher elucidated concluding remarks per objectives: To the first objective and research question, the study concludes that the findings from the present research show that the most commonly English language skills achievement were English Listening skills, English Speaking skills, English Writing skills and English Reading skills. The researcher discovered a low level of achievement in using English

language and this fact has deteriorated the learners performance in science and elementary technology in rural public primary schools in Rwanda. To the second objective and research question, after analyzing student performance in English language, the study concludes that the most commonly performance of students in science and elementary technology was assessed through the improved scores in SET assessments, increased class participation and improved homework completion rate. The researcher established that student did not participate actively and perform poorly in homework and but they completed their primary level of education. Finally, to third objective and research question, the study establish relationship between use factors for using local language and student performance in using English in lower primary schools located in Nyamasheke District. Therefore, a correlation matrix between independent variables and dependent variables show positive significance since the p-value were less than 0.05.

There should be the way forward to improve on the motivation of both learners and their teachers in the use of English language within and outside the school compound. Most of learners think that English language is to be used in the classroom only. Therefore, the Ministry of Education should organize some program which can motivate the learners such as English reading, speaking, listening, writing and singing, competitions.

The learners' performance in English subject is yet to be improved. Therefore, the teachers concerned in this subject should make more effort to help their learners to increase the level of performance. With this regard, learners need qualified and competent teachers in English language, enough and updated teaching aids prepared in English language as medium of instruction. This will help them to improve their academic performance. Therefore, the Ministry of Education should take this point into consideration by providing the necessities in teaching and learning English language. More textbooks and other teaching aids should be provided in consideration of the number of learners in the classrooms. This should go hand in hand with the provision of more training to both learners and teachers. In the findings the majority of teachers expressed that they need more training in the use of English language. Partners in educational activities in the district under study should collaborate with the community for improving the level of speaking, reading, writing and listening English as a language of instruction. The study recommends future researches to carry out studies in the following subject: The effect of creating awareness on importance of English language among students at all levels of education. The influence of English language on Rwandan economic development Effect of English as a language of instructional on Rwandan pupils' learning outcome other factors that affect pupil's performance in English language.

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