Code-Switching in Practice: Prevalence in Classroom Interactions during English and Mathematics Lessons at Selected Secondary Schools in Muhanga District, Rwanda

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ABSTRACT

In multilingual communities—a large number of them in Africa—the use of code switching and its impact on classroom interactions differ greatly depending on the area's linguistic environment, educational policies, and cultural views on multilingualism. In Rwanda, where English proficiency is limited and the English language is the medium of instruction, code-switching (henceforth CS) seems to be a persisting practice in classroom interactions, and it has impacts on teaching and learning English and mathematics subjects. This study aimed to investigate the effects of code-switching on classroom interaction, focusing on English and mathematics subjects, specifically in selected secondary schools in Muhanga District, Rwanda. The study investigates the use of code-switching in English and mathematics subjects within multilingual societies, focusing on the challenges posed by language proficiency gaps. It aims to determine how prevalent code-switching is, its impact on classroom interaction, the reasons behind its use, and the perspectives of teachers and learners. The study was based on Kwame's interactionism theory, which emphasizes the significance of experience, environment, and innate learning abilities in language acquisition. A descriptive research design was employed, utilizing a mixed-method approach for data collection, analysis, and presentation. Data was gathered through a questionnaire for teachers and students, an interview guide to meet the results from English and mathematics teachers in each of the participating schools, as well as an observation guide. The study's target population included 475 participants: 467 students, 4 English teachers, and 4 mathematics teachers. A sample size of 90 respondents was selected, consisting of 82 students, 4 English teachers, and 4 mathematics teachers. Students were chosen using systematic sampling, where the first respondent was selected randomly and the next respondent was picked at intervals of two. Teachers, on the other hand, were selected through purposive sampling techniques. The data were coded, and their analysis was conducted using SPSS version 20, employing statistical tools such as frequency counts, percentages, means, and standard deviations. The key findings revealed that CS is a prevalent practice used to bridge linguistic gaps, aid comprehension, and foster effective communication, particularly in mathematics, due to its conceptual nature and diverse linguistic backgrounds of students and teachers. They also revealed that its overuse can affect language proficiency and the loss of cultural identity. Therefore, the study recommends that it should be used strategically. The findings of this study influence language policy implementation and instructional strategies in Rwanda's educational system. It recommends moderate use of code-switching to enhance understanding and classroom interaction, while encouraging teachers and students to use the language of instruction for self-improvement.

Keys words: Code, Code-Switching, Code-Mixing, Classroom Interaction, Medium of Instruction

I. INTRODUCTION

English is a common language of instruction in educational systems around the world. According to Tabaro and Twahirwa (2018), while teaching and learning any subject—be it science or language—in multilingual communities, it is common to observe various language usage patterns such as code-switching and code-mixing. Teachers can help students communicate more effectively and improve their comprehension by using code-switching strategies. Code-switching also makes classroom instruction easier for teachers, as they do not need to invest as much time clarifying concepts or simplifying explanations to resolve potential confusion (Modupeola, 2013). In some African bilingual and multilingual communities, where learners speak more than one native language, teachers switch and mix codes to help learners better understand the lesson.

For example, Nita (2015) claims that despite the existence of 11 official languages in South Africa, only English is used as the language of instruction, while other indigenous languages are only occasionally or rarely employed in conversation or instruction. According to Nita (2015), studies have shown that it is uncommon to have an English classroom where the teaching and learning processes are conducted entirely in a single language. Code-

switching and code-mixing of English and other mother tongues, spoken by both teachers and learners, are common, even in English language schools.

In Rwanda, the use of English for daily communication is extremely low, and many people who should be using the language demonstrate questionable proficiency (Sibomana, 2014). Numerous studies have demonstrated that it is uncommon to have an English classroom where teaching and learning are conducted solely in English. Code-switching, code-mixing, and the use of other mother tongues by teachers and students are common practices in English language classrooms (Nita, 2015).

Since the majority of people in Rwanda speak and understand Kinyarwanda as their mother tongue, code-switching and code-mixing are frequently employed by teachers and learners in classroom interactions. There are several reasons why people switch codes. By code-switching, speakers can convey multiple meanings and intentions while defining, influencing, or manipulating situations to meet their needs (Sert, 2005, as cited in Modupeola, 2013).

According to Modupeola (2013), code-switching helps develop close connections between people who share a similar language. It serves as a technique for fostering linguistic unity, particularly among people with similar ethno-cultural identities. Additionally, it may be used deliberately to exclude someone from a conversation in particular circumstances. Code-switching is considered an expression of unity with a group. However, other factors may come into play, such as a speaker's inability to express themselves fully in one language, which leads them to switch to another to compensate for deficiencies in the original language.

In light of this, the present research aims to investigate the effects of code-switching on classroom interaction, the reasons behind code-switching in English and mathematics subjects, and the perspectives of both teachers and learners on code-switching. This chapter explains the background of the study, the statement of the problem, the research objectives, and the research questions. It also highlights the theoretical and conceptual frameworks that guided the research.

1.1. Statement of the Problem

In multilingual societies like Rwanda, where English is not a native language, its use as the primary medium of instruction has led to widespread code-switching and code-mixing in classrooms. While teachers employ code-switching to enhance communication and understanding, excessive reliance on it poses challenges for classroom interaction (Sibomana, 2014). Studies by Sibomana (2014) and Tabaro and Twahirwa (2018) indicate that many teachers, despite their academic qualifications, lack the requisite language skills to teach effectively in English. This issue has been exacerbated by the government's decision to replace Kinyarwanda and French with English as the sole language of instruction, creating communication difficulties for both teachers and students (Tabaro & Twahirwa, 2018).

To mitigate these challenges, the Rwandan government has implemented policies aimed at improving teachers' English proficiency, including training programs, School-Based Mentors (SBMs), and initiatives like Communities of Practice (COP) (Tabaro & Twahirwa, 2018). However, despite these efforts, code-switching remains prevalent in classrooms, raising concerns about its effect on language mastery and academic performance. In English classes, frequent code-switching may limit students' language immersion, negatively affecting their proficiency. In mathematics, it can obscure the understanding of key terms and concepts, potentially undermining students' academic performance.

Existing research on code-switching has largely focused on language teaching and sociolinguistic contexts (Tabaro, 2013; Wibowo, 2017; Girsang, 2015; Luke, 2015; Action Aid, 2012; Suganda, 2018), but there is limited research examining its specific impact within English and mathematics subjects in secondary schools. Additionally, there is a need to explore how code-switching affects the implementation of the Competence-Based Curriculum (CBC) in Rwanda. This study aims to bridge this gap by investigating the effects of code-switching on classroom interaction, language proficiency, and academic performance in English and mathematics, as well as the perceptions of teachers and learners in selected secondary schools in Muhanga District.

1.2 Research Objectives

The main purpose of this research is to explore the code-switching in practice: its prevalence in classroom interaction and its effects on learning outcomes in English and Mathematics in selected Secondary Schools from Muhanga District. Its specific objectives are the following:

i. To explore the prevalence of code-switching in classroom interaction in English and Mathematics subjects in selected Secondary schools.
ii. To analyse the effects of code-switching on learning outcomes in English and Mathematics subjects.

II. LITERATURE REVIEW

2.1 Theory in Relation to Code-Switching

Code-switching is the act of switching between two or more languages or linguistic forms during a single conversation or discourse (Shartiely, 2016). It is in this context that this research is backed by the following theories:

2.1.1 Interactionism Theory

Kwame (2018) characterizes interactionism theory as a theoretical perspective that acknowledges the importance of experience, the environment, and natural learning capacities in the process of language acquisition. According to researchers in interactionism, the environment does not act as a passive agent in language development. Piper (1998), cited in Kwame (2018), states that social interaction and the environment are key determinants in initial language learning. Additionally, Piper views parents as playing a critical role in this process, with their interactions influencing the learning process in which children are active participants.

Luke (2015) defines language as an instrument used in communication that impacts various aspects of people's lives. Language is essential for conveying ideas and thoughts, making it an indispensable tool for human beings.

This perspective suggests that for learning to occur, there must be interaction and communication between teachers and learners, as well as among learners themselves, highlighting the crucial role of interaction.

Vygotsky (1978) asserts that "language serves as the primary instrument that facilitates cognitive processes, enhances logical thinking, and underpins cultural activities such as reading and writing." He also emphasizes the significance of adult interaction in language learning, noting that "the process of learning a language can serve as a paradigm for understanding how learning and growth are related." Language initially develops as a means of interaction between the child and those around them, but it only begins to organize the child's cognition and develop into an internal mental function when it transforms into internal speech (Vygotsky, 1978).

2.2 Empirical Review

2.2.1 Code-switching and classroom interaction

Code-switching in classroom interaction, particularly in English and Mathematics subjects, is an established practice with both positive and negative effects. It is often employed to enhance comprehension, accommodate language diversity, and promote inclusivity. However, its impact on language development and overall teaching effectiveness remains a topic of debate. Understanding the motivations behind code-switching and the perceptions of teachers and learners is crucial for educators to make informed decisions about its use in the classroom. This empirical review aims to investigate the existing literature on the use of code-switching in classroom interactions.

Wisbey (2017) underscores the importance of dialogue between instructors and students, highlighting that "We learn to read but we are born to talk," as aligned with SDG 4. Code-switching helps learners develop critical thinking and decision-making skills, utilizing their languages and experiences to access various opportunities. It fosters confidence in sharing and engaging in discussions and supports creativity and collaboration by allowing students to use their unique skills alongside others.

Action Aid (2012) defines the language of instruction as the language used to teach the fundamentals of the educational system, whether inside or outside the classroom. The study concludes that while some countries choose to teach exclusively in one language, usually the official or majority language, others prioritize teaching in national or local languages. However, students learning in a foreign official language often face significant disadvantages in the educational system.

Tabaro and Twahirwa (2018) assert that the language of instruction is a crucial tool for learning any content; in Rwanda, English is mandated as the sole medium of instruction. Simasiku et al. (2015) note that code-switching may improve academic performance. Consequently, teaching and learning could benefit from strategic use of code-switching to help students master subjects.

2.2.2 The Prevalence of Code-Switching in Classroom Interaction

According to Cakrawarti (2011), people sometimes prefer using different codes depending on the context. They might choose a specific code or language because it makes discussing a particular topic easier, depending on the setting. For example, individuals might use a language associated with work or home when discussing topics related to those areas, rather than the language they typically use for everyday communication. A code is essentially a system used for communication.

Modupeola (2013) emphasizes the importance of code-switching as a technique for enhancing the teaching and learning of English, particularly at the foundational level where the skill is being introduced to students. Code-

switching also facilitates effective communication of ideas from the sender to the receiver. Early exposure to code-switching can give students an advantage in their learning process, aiding them in achieving proficiency in English.

2.2.3 Code Switching in Mathematics Subject: What Scholars Recommend

Researchers have long believed that linguistic capability affects mathematics achievement (Aiken, 1972, as cited in Kenyon, 2016). More recent studies by Morgan (1999) and Schleppegrell (2007), also cited in Kenyon (2016), highlight that understanding and using mathematical language is an essential component of learning mathematics.

According to Kenyon (2016), mathematics is considered a language in its own right because it shares many characteristics with spoken languages (Wakefield, 2000, as cited in Kenyon, 2016). However, unlike most familiar languages that are read from left to right, mathematics can be read from various directions: right to left, top to bottom, bottom to top, or a combination of these (Adams, 2003, as cited in Kenyon, 2016). It consists of words, symbols, and numbers, and has a precise and sophisticated structure. Some students find the use of symbols challenging because it requires additional cognitive processing to translate these symbols into words and meanings, which complicates the task of resolving mathematical sentences.

2.2.4 Code Switching while Teaching English

Action Aid (2012) describes the medium of communication used to transmit knowledge as language of instruction. This is distinct from language teaching itself, where grammar, vocabulary, and the written and spoken forms of language constitute a specific curriculum for the acquisition of second language. This opens up access to other value systems and ways of understanding the world, encourages intercultural understanding, and aids in the reduction of xenophobia. Speakers of minority and majority languages are both affected by this.

2.2.5 Code Switching while using English as a Medium of Instruction

Suganda (2018) define the medium of instruction as the language that the teacher uses in teaching. The language used as a medium of instruction has a significant impact on the teaching and learning environment. Researchers have found via numerous studies that a language of instruction is a tool that helps students learn content (Kyeyune,2010 cited in Suganda, 2018). The language that is used for learning and teaching is essential for students' knowledge and understanding, skill development, and capacity to effectively apply their new knowledge in assignments and exams. If the students don't understand the language being used as a medium of instruction well enough, they will struggle to advance academically (Brock-Utne & Alidou, 2011 as cited in Suganda, 2018)

2.2.6 Reasons for CS and CM in Education Context

Some researchers identified various possible reasons for switching from one language to another. According to Girsang (2015), there are four causes for code switching: the first is a lack of proficiency in one language or understanding of that language on a particular subject. The inclusion of specific individuals from a variety of talks is the second justification for code-switching. It is well known that those people are illiterate in the language of switching. Additionally, the third justification for code-switching is used as a stylistic device to mark a change in conversational tone at a certain moment or to signal the introduction of a subject that is more or less formal than what has been discussed thus far. The fourth justification is an effort to impress someone else with one's virtuosity, or at least in one prestige language.

2.2.7 Multilingualism vs. Language of Instruction: Call for CS and CM

The language of instruction, according to UNESCO, is "a language used for teaching and learning in an educational program". This differs from "language as subject", in which students study the organisation and use of a language in both oral and written communication. (*Tools for Planning and Monitoring Programmes of Multilingual Education in Asia*, n.d.)

According to Wisbey (2017), the majority of educational systems neglect the fact that individuals speak multiple languages and utilise them in everyday life despite the fact that we live in a multilingual society. Around 7,097 living languages are currently known to exist, and the majority of children grow up in environments where more than one language is spoken.

However, research indicates that about 40 per cent of children do not have access to an education in a language they can understand, which has a severe impact on their learning (United Nations Educational, Scientific and Cultural Organisation, 2016). A number of countries still prioritise national or official languages (second language), which are not the languages people speak at home, as a language of instruction (Kosonen, 2017). The Sustainable Development Goals take language of instruction into account when discussing equitable education. The percentage of primary school children whose first or home language is the language of instruction is covered by thematic indicator 4.5.2 (UNESCO-UIS, 2018).

2.2.8 Code switching in promoting classroom interaction

According to Hanum (2009), teaching is an interactive act, and communication between the teacher and the students occurs continually as a response act.

Tickoo (2009) cited in Hanum (2009) expressed that an effective class period can be summarised by considering classroom involvement and activities in the following ways: the teacher interacts with the entire class, engages with the class collectively, with pairs of students, or individual students; students interact with each other in pairs, groups, individually, or as a whole class; and students make attempts at tasks independently, in groups, and so forth, utilising resources or seeking assistance.

III. METHODOLOGY

This study used a descriptive research design which combines quantitative and qualitative methods where qualitative is dominant. Both methods helped the researcher to gather and analyze accurate data to help explain the traits of the target population, which consists of the teachers and students of S3 in the four selected Secondary day Schools from Muhanga District.

Senior Three (S3) students reach a significant educational milestone, preparing for national exams that transition them to higher levels of education where language use becomes more sophisticated. Thus, selecting this final grade for research on code-switching provides a thorough understanding of how code-switching converges and impacts language use at this crucial educational and developmental phase.

According to a statistical report from 2023, the target population's size was predicted to be 467 students studying in S3 of the participating schools, and 8 English and Mathematics teachers from the four selected schools in Muhanga District.

By using a look-up questionnaire for teachers and students, an interview guide to meet the results from English and Mathematics teachers in each of participating school, as well as an observation guide that aids the researcher in gathering additional data, the study has incorporated both quantitative and qualitative information from each primary and secondary source of data.

The systematic sampling method was used to select the sample for this study, in this approach, the initial unit is randomly selected, and subsequent units are automatically chosen at regular intervals based on the sampling interval. In this research the first respondent was chosen randomly and then next respondents were selected with the interval of two in selecting students who participated in this research in each S3 class of the four selected schools.

Purposive sampling, also known as judgmental, selective, or subjective sampling, represents a non-probability sampling technique that was used to select participants in four schools selected. For this research purposive sampling was used where all English and Mathematics teachers were selected purposively. As Table 1 indicates, 90 respondents who were selected to take part in this research.

Table 1
Demographic data of respondents

No	Identification	Gender		Ages (Years)			Schools' location		Level of Education			Teaching Experience (years)		Teaching Qualification	
		M	F	>18	18-25	<25	village	Urban	A1	A0	Masters	1-4	<5	ED	NED
1	Students	31	51	71	11	0	41	41	No	No	No	No	No	No	No
2	Teachers	6	2	0	0	8	4	4	3	5	0	1	7	8	0
3	**Total**	**37**	**53**	**71**	**11**	**8**	**45**	**45**	**3**	**5**	**0**	**1**	**7**	**8**	**0**

IV. FINDINGS & DISCUSSION

4.2 Prevalence of CS in Classroom Interaction in English and Mathematics Subjects

Respondents describe their viewpoints on the practice of many languages in single instruction in English and Mathematics in order to make learners understand the learning content.

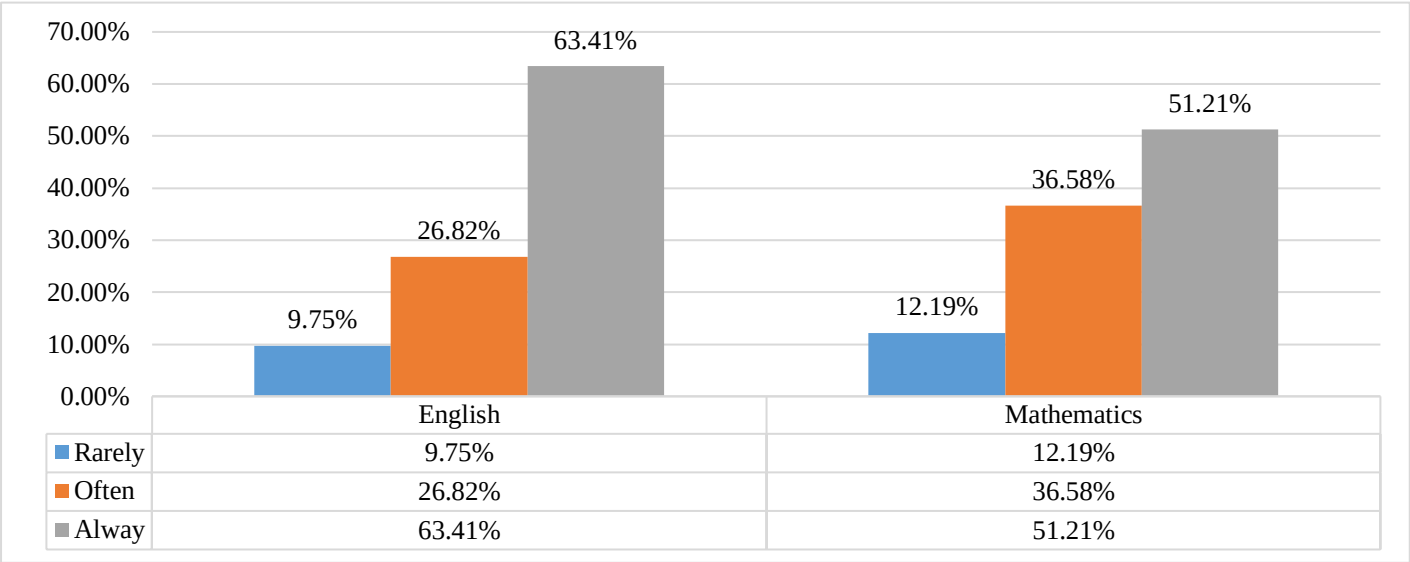


Figure 1
Learners' Views on Practice of CS

The findings reveal that code-switching is a common practice in both English and Mathematics subjects, primarily driven by the need to support learners' understanding and bridge linguistic gaps between teachers and students. The data shows that code-switching is prevalent in classroom interactions for both subjects, though it occurs more frequently in English classes. Specifically, 63.41% of students in English classes reported always noticing teachers using code-switching, 26.82% observed it often, and only 9.75% rarely noticed it. In Mathematics classes, slightly fewer students reported frequent use of code-switching: 51.21% always noticed it, 36.58% observed it often, and 12.19% rarely noticed it.

According to Luke (2015) and Owu-Ewie and Eshun (2015), language serves as a tool for expressing ideas and thoughts. Therefore, learners with language barriers often resort to code-switching to bridge gaps with their teachers. The findings suggest that code-switching does not hinder comprehension; rather, it facilitates effective interaction between teachers and students, fostering better understanding in both English and Mathematics subjects. The nuanced use of code-switching in these subjects is influenced by pedagogical approaches, the nature of the subject, and the diverse linguistic backgrounds of learners and teachers. This research highlights code-switching as a valuable strategy for enhancing comprehension and fostering effective communication in classroom interactions. This finding supports Naha's (2018) description of code-switching as a means to facilitate the easy acquisition of knowledge.

During interviews with English teachers, they expressed their satisfaction with using code-switching, as illustrated by the following excerpts.

> *CS is good and needed but it should be used on the level of 20% in the process of learning and teaching for helping our learners to have skills in English and working very hard to improve their level of English (EXTRACT 1)*
>
> *CS is in need of helping students to understand better and achieve success (EXTRACT 2)*
>
> *CS is a needed practice for classroom interaction in English subject for facilitating rapid understanding. (EXTRACT 3)*
>
> *CS is better for teachers because it helps them to achieve the objective of the lesson (EXTARCT 4)*

During classroom observation, CS was observed in some classroom activities as the following table summarises:

Table 2

CS Observed in Classroom Activities

Activities	Language used	Remarks
Introduction of the lesson	Primarily English+ Mother tongue	Teachers tried to introduce in English but suddenly switched to mother tongue for complex terms and examples
Learners answering the questions	Predominantly English+ some Mother tongue	Leaners answer questions in Medium of instruction but use Mother tongue while discussing among themselves
Learners discussing in group works	Mother tongue is predominant+ some medium of instruction	Use of CS is predominant because most learners are stuck with medium of instruction
Learners presentation	Mother tongue mixed with CS	Learners use Medium of instruction with some CS where they lack proper words to use
Learners discussing out of classroom in peers	Mainly Mother tongue	Learners interact mainly in Kinyarwanda which is likely to influence classroom interactions
Teachers giving instructions	Medium of instruction	Use of Medium of instruction is observed with some occasional CS for clarification
Learners doing exercises	Medium of instruction +Mother tongue	There is a mixture of Medium of instruction and Mother tongue
Explaining new concepts	Medium of instruction	The teachers consistently use Medium of instruction but CS appeared for unfamiliar content
Debating	Medium of instruction	Arguments are presented in Medium of instruction but when it comes to strong emotions CS is noticed.

According to Table 2, the observation was based on the significant role of code-switching in facilitating classroom interaction. As observed, teachers and learners used code-switching to enhance their understanding of each other, clarify doubts, and encourage participation. However, as it had positive and negative effects on interactions, it was clear that code-switching played an important role in accommodating language diversity within the classroom and promoting effective communication.

In addition, during classroom observation, it has been observed that during classroom interaction some words are more repeated than others depending on what the teachers want to emphasize, as the following table summarizes code-switching distribution in the English classroom.

Table 3

Observed Most Switched Words during Classroom Observations

English mostly switched words	**Frequency**
Predicate/indagihe	8 times
Describe/sobanura	5 times
Metaphor/imvugo ngereranyo	3 times
Plot of the story/umugambi w'ingenzi w'inkuru	2 times
Characters/abagize inkuru	2 times
Mathematics mostly switched words	**Frequency**
Times/ubwikube	10 times
Variable/ibintu bihinduka	7 times
Simplify/koroshya	4 times
Scores/amonota	2 times
Compute/kubara	2 times

Table 3 indicates the words most switched; they are all key words that can help learners understand tasks given by the teachers. As observed, the languages most commonly switched to while teaching English and mathematics subjects are Kinyarwanda, which is the mother tongue, and sometimes some French. This linguistic mixture originates from Rwanda's historical background, where both French and Kinyarwanda have been used as languages of instruction at different stages of education (Tabaro, 2013).

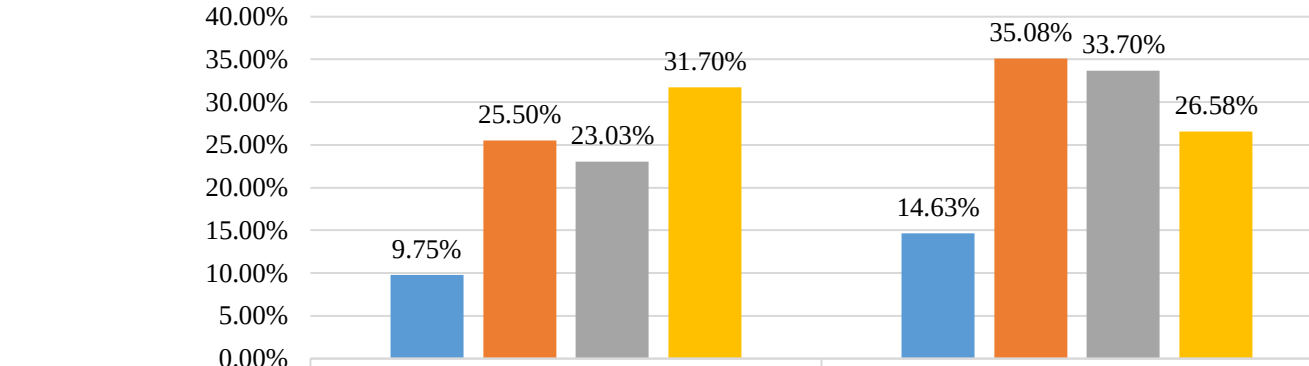
However, the findings suggest that despite the prevalence of CS in both English and mathematics, it is more remarkable in mathematics due to its conceptual nature and diverse students and teachers' linguistic backgrounds. While English background tends to adhere strictly to monolingual instruction policy, mathematics teachers often turn

to CS to aid comprehension, especially when explaining complex mathematical concepts. As Maluleke (2019) argued, students fail in math due to a lack of sufficient math vocabulary; thus, CS comes as a result to overcome such a deficiency of vocabulary.

As a whole, CS is perceived as a realistic approach to enhance learning effectiveness, especially when English proficiency poses a barrier to comprehension, and different researchers have the same view that CS comes in to aid comprehension (Cakrawarti, 2011; Naha, 2018), especially in mathematics, which needs mathematical language to understand essential components of learning mathematics (Morgan, 1999; Schleppegrell, 2007 cited in Kenyon, 2016).

4.3 The effects of CS on Classroom Interaction in English and Mathematics subjects

The following table reveals the opinions among students regarding the effects of CS, with different perceptions of its effects on understanding, communication, and learning.



	English	Mathematics
Enhances understanding	9.75%	14.63%
Confuses students	25.50%	35.08%
Improves communication	23.03%	33.70%
Hinders learning	31.70%	26.58%

Figure 2

Views of English and Math Students on Effects of CS

The findings reveal that 9.75% of English students believe code-switching (CS) enhances their understanding by providing alternative explanations, while 25.5% find it confusing, which suggests that the use of multiple languages in the classroom may hinder their ability to follow lessons. Additionally, 23.03% think CS improves communication, possibly by facilitating expression and offering diverse perspectives. However, the largest percentage (31.7%) feels that CS negatively affects their learning, potentially introducing complexity and distractions.

In comparison, 14.63% of mathematics students believe CS enhances understanding, indicating that some find the use of multiple languages beneficial in comprehending mathematical concepts. A higher percentage (35.08%) views CS as a source of confusion, and 33.7% think it improves communication. Still, 26.58% feel it hinders learning. These findings suggest that teachers should carefully consider when and how to use code-switching in classrooms, as its impact varies across subjects and student perceptions.

The findings also revealed that both students and teachers have varied opinions on the impact of CS in classroom interaction in English and mathematics subjects. Some view it as beneficial for comprehension and communication, while others see it as a hindrance to learning or language development leading to confusion and dependency. However, the perception of CS varies between English and mathematics classes. While some students find it helpful in one subject, they might view it negatively in another, indicating the contextual nature of CS. Researchers have proposed that mathematics is essentially its own language, with certain symbols that cannot be translated into other languages (Kenyon, 2016). In this context, code-switching (CS) could hinder learning or cause confusion due to the complexity of mathematical language (Kan & Bulut, 2015).

Additionally, the results indicate that excessive use of code-switching (CS) leads to language proficiency problems and loss of cultural identity. Therefore, teachers advocate for the use of the mother tongue to establish a basic understanding before transitioning to other languages. Furthermore, the research highlights the necessity of strategically using CS due to its potential benefits and adverse effects on language development. This viewpoint aligns with other researchers who stress the importance of the language of instruction as a framework for understanding the world, particularly within an intercultural context (Action Aid, 2012).

Once again, both learners and teachers express positive perceptions of the effects of code-switching on classroom interaction. Positive effects include improving learners' experiences with language usage, enhancing understanding of concepts, and boosting learners' self-achievement. However, there are also concerns about negative effects, such as developing a dependency on code-switching and inhibiting the development of English language skills.

Finally, some interviewed teachers expressed concerns that excessive code-switching can hinder learners' development of English language skills and could potentially destroy cultural or linguistic identities. All in all, teachers need to understand the effects of CS on learning so that they can use it effectively by creating more inclusive and engaging learning environments by balancing use of CS for comprehension without hindering language development or dependency.

4.4. The Reasons behind CS in English and Mathematics Subjects

Girsang (2015) and Ahmad (2009) identified various reasons for CS, such as lack of language proficiency, understanding of a particular subject, and clarification of content. The findings of this study on the views of students on the reasons behind CS in classroom interactions reveal that there is a consensus among students that CS allows for meaningful self-expression and negotiation of meaning. This alignment signifies the perceived role of CS in enabling students to communicate more effectively and comprehend diverse perspectives. On the other hand, English teachers might further explore CS as a means to enhance student participation, drawing inspiration from mathematics teachers' strategies in explaining complex concepts.

The following table indicates the opinions of teachers on some of the reasons for using CS in classroom interaction.

Table 4

Teachers' Opinions about Their Use of CS in the Classroom

Teachers' Opinions/Statements	N	Mean	Std. Dev.	Interpretation
Students understand better when I use code-switching or mix languages in class	8	4.62	.518	Very high level
Students always use code-switching and mix languages in their classroom interaction	8	4.25	.463	Very high level
Students are confident in using English in everywhere in the school compound	8	2.75	1.035	High level
Code-switching is better in teaching mathematics or any other science	8	3.75	1.165	Very high level
Code-switching helps students to pass national examinations	8	1.38	.518	Very low level
It is effective to use code-switching in group discussions for all students to participate actively	8	3.00	1.414	High level
Code-switching helps better to describe mathematical problems	8	3.00	1.414	High level
Complex mathematical equation cannot be understood without using code-switching	8	3.75	1.165	Very high level
Overall mean		3.312		

The results of Table 4 indicate that while there is a general agreement on the benefits of CS for enhancing understanding and teaching effectiveness, there are differing opinions on its application in various contexts, such as examinations and group discussions. Neutrality is observed in statements related to students' confidence in using English and the effectiveness of CS in certain teaching scenarios. The teachers' responses are not entirely homogeneous, reflecting the diversity of perspectives on CS in educational settings.

In addition, both English and mathematics students perceive that CS aids in understanding content better, leading to improved mastery and confidence, consequently contributing to success. CS is also seen as a tool for students to express themselves using familiar concepts and to interact more comfortably with teachers. The findings revealed also that students feel that CS helps in comprehending the medium of instruction by presenting key concepts in a language they are proficient in. The findings fall under other researchers' views, such as Hanum (2009) and Action Aid (2012), who suggest that teaching should be an interactive act and everything happening in class should be a responsive act where teachers interact with the whole class, a pair of students, or a single student, and students interact in pairs, groups, individually, or as a class.

Furthermore, the findings reveal that teachers use CS to install confidence in learners and expand their cognitive horizons. Once more, the findings revealed that students believe that CS assists in storing content in memory for future recall; it also aids in understanding other subjects, languages, and cultures, potentially leading to improved performance. Some scholars are in the view that CS improves academic performance (Simasiku, 2015).

Moreover, the findings reveal that CS is used to encourage participation among weaker learners and assist them in engaging with the lesson. Once more, students who struggle to express themselves freely resort to CS to convey their queries or thoughts effectively. In mathematics, CS is perceived as crucial for grasping complex concepts or units, especially in topics like statistics. There is an agreement with another researcher who underlines the significance of dialogue between teachers and students by actively sharing experiences (Wisbey, 2017).

In the views of teachers, CS is used in classroom interaction for various reasons, as interpreted in the previous chapter. Both English and mathematics teachers claimed to use CS to ensure students grasp the key points of the content being taught and to assist students who face difficulties with the English language.

4.5 The Teachers' and Learners' Perceptions on CS in English and Mathematics Subjects

The findings indicate the perceptions of both learners and teachers regarding the use of CS in English and mathematics subjects, offering valuable insights into attitudes, preferences, and perceived effectiveness within classroom interactions; both students and teachers recognize CS as a valuable tool for enhancing comprehension, particularly in complex subjects like mathematics and science.

However, these findings collectively suggest the need for a balanced strategy for incorporating CS in classroom interactions, acknowledging the diverse perceptions among students and teachers. Addressing the concerns of minorities who perceive CS negatively, particularly in English classes, could involve encouraging an inclusive environment that respects linguistic diversity while ensuring language precision.

Furthermore, exploring the context-specific nature of CS usage in different subjects could be beneficial. Understanding why math students view CS more favorably compared to English students might involve examining the role of language in teaching abstract concepts versus language fluency. Despite the views of teachers on code-switching as a needed practice, some researchers disregard this view as a sign of laziness among language users and lead to negative performance in language usage. The vast majority of bilinguals have negative views on code-switching and code-mixing, according to Girsang (2015). Language mixing and switching are viewed as indicators of "laziness," "inadvertent" speech acts, instances of linguistic decadence, and a threat to their own linguistic performance (Suganda, 2018).

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

The key findings suggested that code-switching is a common practice in English and Mathematics classrooms, primarily employed to enhance comprehension and facilitate interaction among students, thus to bridge language gaps with teachers. However, it was emphasized that a balanced approach to CS is crucial, considering learners' language proficiency and the subject matter being taught. Excessive use of CS was found to potentially impede the development of English language skills among students and could threaten cultural or linguistic identities.

5.2 Recommendations

With regards to the research findings in relation to different stakeholders, it has been recommended that code-switching should be used in a balanced way for the sole purpose of enhancing learners' understanding and facilitates classroom interaction.

In addition, teachers should be encouraged to use the language of instruction and encourage learners to do so for self-improvement. Teachers should use all strategies that foster learners' language development by providing clear explanations, helping learners to provide feedback comfortably in language of instruction for developing successful learning experiences.

On the other learners should be encouraged to express their thoughts in language of instruction in order to develop their language skills.

Finally, it is recommended to the Government of Rwanda through its education boards should prepare learning materials with a language that uses appropriate vocabulary and expressions easier to understand.

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