



Language as a Barrier to Technology Integration in Education: The extent of Teachers' English Difficulties in Accessing Online Resources in an African Country Transitioning from French to English Medium Instruction

Emmanuel Shema¹ David Wamamili Wanyonyi² & Chris Wekesa Mukwa²

¹College of Arts and Social Sciences, University of Rwanda, Rwanda

²Moi University, Kenya

<https://orcid.org/0000-0002-1413-1891>

Email: e.shema1@ur.ac.rw / ddwanyonyi@yahoo.com / chrismukwa2015@gmail.com

Abstract: Research on technology integration in developing countries has emphasised physical infrastructure, with limited attention to teacher-level constraints such as language proficiency. In Rwanda, the 2008 shift from French- to English-medium instruction created a challenging context where many teachers lack adequate English proficiency. However, a shortage of textbooks, particularly in sensitive subjects like Comprehensive Sexuality Education (CSE), has compelled teachers to rely on internet resources, which are mostly in English. This study examined the extent of English language difficulties Rwandan secondary school teachers encounter when searching for CSE instructional materials online. Employing a cross-sectional survey design, quantitative data were collected from 207 teachers in purposively selected schools with internet access. The study was guided by Bourdieu's theory of linguistic capital and symbolic violence, and Warschauer's Social Embeddedness of Technology framework. Data were analysed using frequency distributions and percentages. Results show that 94.69% of teachers used English when searching for CSE materials online, despite limited proficiency, and 52.55% reported experiencing language difficulties. These findings highlight teachers' paradoxical preference for English over French and Kinyarwanda despite self-reported difficulties, as it provides better returns in terms of quantity and quality. Also, teachers' meaningful access to online resources is constrained by linguistic barriers at the digital resource level, as English dominates online linguistic architecture and content, and at the individual level, as teachers lack adequate English proficiency. The study concludes that teachers' limited English proficiency constitutes a linguistic barrier to technology integration and recommends targeted language programmes to improve teachers' engagement with online resources.

Keywords: English language proficiency, Technology integration, Linguistic digital divide, Comprehensive Sexuality Education (CSE), linguistic capital, Social embeddedness of technology, Medium of instruction policy

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1. Introduction

Around the world, the use of the internet and digital technologies in teaching has grown rapidly in the twenty-first century, due to major investments from governments and other education stakeholders. The

investments and resulting access to technologies have been motivated by growing evidence of their potential to improve instructional quality, as they provide ubiquitous access to the latest knowledge and teaching and learning materials (Timotheou et al., 2023; Valverde-Berrococo et al., 2022; Zou et al., 2025). As a result, teachers in developed countries have embraced the use of the internet

and other related information, communication, and technologies (ICT), though there is still a lot to improve, such as using technology innovatively and in a coordinated way (Fernández de la Iglesia, 2014).

In Sub-Saharan Africa (SSA), teachers' integration of digital technologies into instructional activities is limited due to multiple factors. Most studies have attributed the problem to deficits in ICT infrastructure, such as computers, and unreliability or a lack of electricity and internet connectivity (Crompton et al., 2023; Kafyulilo et al., 2015; Twagilimana et al., 2025; United Nations Educational, Scientific and Cultural Organization [UNESCO], 2023). These infrastructure and access-related problems are common in SSA countries and are well-documented (Twagilimana et al., 2025; Young et al., 2025). Yet, they are not the only constraints exacerbating the problem. English language proficiency is also one of the factors that may influence access and use of online digital technologies in developing countries, including SSA, as it is the dominant language of the internet (Kukulska-Hulme et al., 2023), and the most widely used language in academia globally (Abrar-ul-Hassan, 2021). Consequently, teachers who lack command of the language are very likely to experience difficulties accessing online instructional materials.

Rwanda provides a particularly instructive case for examining this argument. Over the years, the country has increasingly invested in ICT and educational technologies. The country has rolled out broadband connectivity via aerial cables, mobile phone networks, and ground optical fibre cables connecting most parts of the country. In 2016, 35.4% of secondary schools had access to the internet, while by the end of 2019, this had increased to 61.1% (Ministry of Education, Rwanda, 2019, p. 54). After three years, in 2022, general education secondary and TVET schools with internet connectivity were, respectively, 73.2% and 77.7% (Ministry of Education, Rwanda, 2023, p. 104). The learner-computer ratio at the general secondary school level improved from 27:1 in 2016 to 8:1 in 2022 (Ministry of Education, Rwanda, 2019, p. 54, 2023, p. 107). This increase in ICT infrastructure has considerably improved technology integration in education, although significant challenges persist due to insufficient infrastructure and equipment (Ndayambaje, 2023). Nonetheless, evidence suggests that some teachers do not integrate the internet into teaching to the expected extent (UNESCO, 2023). As most online content is in English (Kukulska-Hulme et al., 2023), their under-utilisation of available internet connectivity has often been attributed, in part, to teachers' limited English proficiency as discussed in subsequent paragraphs.

Further, Rwandan secondary school teachers have been mandated by the new curriculum (CBC) to integrate CSE into teaching. CSE or sexuality education is a subject that is both pedagogically sensitive and culturally contested around the world and, particularly, in Rwanda due to religious beliefs, cultural norms, and social taboos about

sexuality (Inshutiyimana et al., 2025; Karousiou et al., 2025; Mbarushimana et al., 2023). As most online CSE resources are predominantly in English, teachers' language competencies may directly influence their capacity to access, evaluate, and adapt online digital CSE instructional materials for instructional purposes.

1.1 Statement of the Problem

Since Rwanda adopted EMI, there have been alarming reports about secondary school pupils' and university learners' poor English language proficiency. In 2023, only 47.15% of third-year secondary school learners assessed met the required "national proficiency benchmarks in English" (National Examination and School Inspection Authority [NESA], 2023, p. 7). Though various factors influence Rwandan learners' poor English proficiency, one of them may be their teachers' limited English proficiency, too. In 2024, the proportion of secondary school teachers meeting the required English proficiency was 38% (Ministry of Education, Rwanda, 2024, p. 94).

In 2015, when Rwanda adopted CBC, the issue of teachers' limited English proficiency was further compounded by the shortage of textbooks aligned to the new curriculum. The scarcity has persisted for many years, denying teachers access to the rich content they needed to deliver instruction effectively (Guidorzi & Karamperidou, 2020). The newly introduced subjects, such as CSE, were the most affected. To address the problem, teachers resorted to the internet to source teaching materials. Yet, English is the dominant language of the internet, as a larger quantity of online information, including open-access educational resources, is available in it (Kukulska-Hulme et al., 2023; Rose et al., 2022; UNESCO, 2023; Ali, 2011). In the case of CSE, the internet was almost the primary, and sometimes, the only available source of instructional materials. Consequently, teachers' poor English proficiency in the English-dominant online content became another barrier, which was more pronounced for CSE than for other subjects with localised resource alternatives.

If Rwandan secondary school EMI teachers' limited English proficiency is not addressed, it can handicap their access to quality instructional information online, which may weaken their ability to impart quality knowledge to learners. It can also negatively impact learners' acquisition of English proficiency, hindering their studying and mastering of school subjects. This can lead to an English proficiency gap and the failure of EMI-related policies, which may, ultimately, negatively affect the quality of education. The gap can further handicap the implementation of ICT in education policy.

However, there has been little to no research about this issue among Rwandan secondary school teachers. The available literature does not appear to have examined the influence of EMI adoption on internet integration into teaching in the Rwandan context. Very little, if anything at all, has been reported on the extent of the English challenges that Rwandan secondary school teachers face

when searching for teaching resources online, and how these challenges shape their use of the internet to find instructional materials. The quantitative dimensions of this problem remain underexplored, particularly in subjects such as CSE, where the dual pressures of teachers' limited English proficiency and subject-related cultural and religious sensitivity are compounded by a lack of dedicated textbooks. Therefore, this study sought to explore the extent to which Rwandan secondary school teachers working in EMI contexts face difficulties with English when searching online for CSE instructional materials.

1.2 Objectives of the study

The specific objectives of this study were the following:

1. To identify languages that Rwandan secondary school teachers use when searching for CSE instructional materials online;
2. To establish the relationship between the media of instruction in teachers' prior secondary and university education and the language they use when searching for CSE instructional materials online;
3. To assess the frequency of English language difficulties experienced by Rwandan secondary school teachers when searching for CSE instructional materials online.

1.3 Research Questions

The study addressed the following research questions:

1. What languages do secondary school teachers use when searching for CSE instructional materials online?
2. What is the relationship between the media of instruction in teachers' prior secondary and university education and the language they use when searching for CSE instructional materials online?
3. How frequently do teachers experience English language difficulties when searching for CSE instructional materials online?

2. Literature Review

2.1 Internet Integration in Teaching in SSA and Influencing Factors

In Sub-Saharan Africa, the integration of online digital technologies into teaching has faced limited or a lack of ICT infrastructure and equipment, and unreliable or a lack of electricity and internet connectivity (Adarkwah, 2021). Nonetheless, in recent years, this part of the world has made significant investments in ICT infrastructure, thereby expanding access, even if the digital divide remains substantial due to limited technology penetration often caused by a lack of financial resources and core infrastructure, such as electricity (Association for the

Development of Education in Africa, 2023). Most countries have put in place ICT-in-education policies guiding the rollout of ICT in their educational systems (UNESCO, 2023; Association for the Development of Education in Africa, 2023). Rwanda is among the SSA countries which have invested significantly in educational ICTs and enacted a specific ICT-in-education policy. These efforts have had a positive impact on the country's education. Technology has improved teaching by improving interaction among teachers and learners, and collaboration among learners. It has also improved the administration of tests and examinations, allowing teachers to provide learners with feedback promptly (Dugbazah et al., 2021).

Nonetheless, the availability of ICT infrastructure, equipment and devices is not enough for all teachers to adopt ICT for instructional purposes. Evidence suggests that, despite their increasing availability, the extent to which ICTs are integrated into the teaching processes remains limited (Twagilimana et al., 2025). There is a growing body of research that points to factors that can affect ICT, particularly the integration of the internet into educational activities. Infrastructural and access-related factors, and a lack of teachers' professional development, are still important challenges to ICT integration into instructional activities (Zou et al., 2025; Twagilimana et al., 2025). Teachers' socio-economic factors may also dictate the extent of their access to ICT (Theodorio et al., 2024), which underscores the need to equip schools with ICT infrastructure so that teachers may have access at school. Other factors that may negatively or positively influence teachers' integration of ICT into instruction include their attitudes and perceptions (Moradi, 2025; Twagilimana et al., 2025). Inflexible teaching timetables have also been found to impede teachers' willingness to use ICTs in education (Msafiri et al., 2023). Teachers' language proficiency is also a very crucial factor, as it influences their capacity to localise, evaluate and access online resources. It is discussed in the following paragraph. All these factors should be addressed, as one of them may become a barrier to technology integration in education.

2.2 Teachers' English Proficiency and the Linguistic Digital Divide in EMI

EMI has been increasingly adopted in many countries and educational institutions worldwide. It is currently used at all levels of education, from pre-primary to the tertiary levels (Choi & Poudel, 2024; Gilanyi et al., 2023; Simpson, 2019). Although various countries and educational institutions may have specific reasons and agendas for adopting EMI, they frequently do so to align with prevailing international political, diplomatic, economic, scientific, and labour-related trends (Akıncıoğlu, 2024; Chinwa & Chikomo, 2025; Willans, 2022). In doing so, they seek to integrate into a globalised world in which English virtually dominates all domains of human activity,

including academia (Alanazi & Curle, 2025; Molina-Naar, 2022).

Nevertheless, evidence suggests that the implementation of EMI in multilingual settings where there is no language support available may compromise the quality of education, as teachers' and learners' limited English proficiency can, respectively, prevent them from achieving teaching and learning objectives (Griffiths, 2023; Simie & McKinley, 2025). For example, a study conducted in Ethiopia reported that learners in EMI contexts scored less than their colleagues studying in their mother tongues in Maths and even in English (Opore-Kumi, 2024). Also, a Cameroonian study found that francophone learners who were trained using EMI for 5 years experienced challenges understanding the content. In fact, the study went further to conclude that English became a barrier preventing learners from accessing the content (Kuchah, 2016).

Teachers' English proficiency challenges can seriously handicap their instructional activities (Chinwa & Chikomo, 2025; Liao et al., 2025; Rose et al., 2022). Particularly, they can impede teachers' access to online resources, as most websites and the emerging artificial intelligence (AI) tools mostly use English, which excludes or limits their access to individuals with poor English proficiency (Matjie et al., 2026; Raihan et al., 2025). The Internet has become a vital source of instructional resources. In some contexts where textbooks are scarce, teachers rely on it to access instructional materials. Even when textbooks are available, the internet is often considered a source of the latest scientific knowledge, as it takes time to compile new knowledge in textbooks. However, as English dominates other languages in terms of online content, individuals, including teachers who lack adequate command of English, may have trouble accessing them (Yaman, 2015). This is a challenge encountered by academic institutions or countries that have adopted EMI, such as China (Liao et al., 2025). The phenomenon has been labelled as a "linguistic digital divide" as individuals with limited or no English proficiency are unable to access online information (Hébert & Bodron, 2024; Pearce & Rice, 2014; Pimienta et al., 2009). In education, it is also a concern as teachers and learners with inadequate English skills struggle to locate appropriate content online, and even when they find it, they have difficulty understanding it. Besides, they are less likely to judge the suitability of online content, which might otherwise be an important instructional material. In other words, they may fail to access rich digital teaching resources, even when they have internet connectivity. This has far-reaching consequences, since countries and individuals lacking adequate English competence are increasingly vulnerable to deepening digital inequalities, given that science and technology are closely intertwined (Yousofi et al., 2025; Yaman, 2015).

Rwanda's 2008 shift from French to English as a medium of instruction exemplifies the previous discussion. Some teachers who were trained and taught in French as a medium of instruction for many years suddenly faced the

challenge of teaching and sourcing materials in English. A study conducted by Milligan & Tikly (2016) reported gaps in teachers' English proficiency. Sometimes, if it is not teachers who experience English language difficulties, it is learners, compelling teachers to teach in English, but provide learners with explanations in Kinyarwanda (Bowden et al., 2024). Implications of the Rwandan language transition have been documented (NESA, 2023; United Nations Children's Fund [UNICEF], 2024); however, their consequences on teachers' online searches for teaching materials remain largely unexplored. This study was designed to examine the problem.

2.3 The Double Barrier in Teaching CSE: Cultural Resistance and Linguistic Challenges

Around the world, sexuality education is not standardised, as various countries have different modes of teaching it. Some have adopted CSE while others prefer an abstinence-only approach (Albert Sekhar et al., 2024). CSE has been promoted for its role in teaching young people to make informed decisions about their sexual and reproductive health (United Nations Educational, Scientific and Cultural Organization [UNESCO] et al., 2018). Specifically, it has been credited for helping individuals acquire "accurate, culturally relevant, and age-appropriate knowledge about various aspects of sexuality", which helps them achieve "good long-health relationship, physical and mental health outcomes" (Albert Sekhar et al., 2024, p. 1). Thus, it has been credited with reducing the rates of sexual violence, sexually transmitted diseases and unwanted pregnancies among young people (Albert Sekhar et al., 2024). However, it often encounters resistance rooted in religious, cultural, and social beliefs and norms that hinder its delivery, a challenge observed worldwide, though varying in degree across regions and countries (Zulu et al., 2019; Tshelane & Tshelane, 2014; Education Review Office-New Zealand Government, 2018; Haas & Hutter, 2018).

In Rwanda, CSE was added to the new national curriculum in 2008 to address reproductive health challenges among young people. However, its implementation has encountered challenges such as cultural and religious beliefs that stigmatise sexuality education (Uzayisenga et al., 2025; Mbarushimana et al., 2022), a lack of resources and teachers' limited skills in CSE (Mbarushimana et al., 2022). The change of the national curriculum and the adoption of EMI added another hindrance: teachers' limited or poor English competence. When the new curriculum was rolled out, there were not enough textbooks aligned to it; therefore, teachers had to search online to source instructional materials. Even new teachers who were trained after the shift to EMI were taught by tutors with inadequate English language skills, perpetuating the problem. Consequently, both older and younger generations of teachers still struggle with a high level of English proficiency (NESA, 2023). This may limit their access to and effective use of online resources, which can

impact the quality of CSE they teach. Nonetheless, even teachers with adequate English language proficiency may be reluctant to search for CSE materials online due to cultural and religious sensitivities. Further, it is also important to note that the problem of access to content due to linguistic barriers has been compounded by the scarcity of CSE materials in Kinyarwanda, the local language. As a result, teachers must search online for teaching materials despite their limited English proficiency. This combination of culture-related factors and linguistic digital barriers has not been fully investigated, despite its clear impact on CSE implementation. Thus, this study was designed to examine the extent of language difficulties teachers encounter when searching for instructional materials online using English.

2.4 Theoretical Framework

This study was anchored on Bourdieu's Theory of Linguistic Capital and Symbolic Violence (Abrar-ul-Hassan, 2021; Bourdieu, 2003) and Warschauer's (2004) Social Embeddedness of Technology framework. Bourdieu's theory states that linguistic capital is the command of a dominant language that confers social advantages over others. It functions as a form of social currency, which grants access to opportunities such as jobs, respect, and information. The theory also refers to the invisible domination of the legitimate language through communication as symbolic violence, since it does not involve physical force and is internalised by the symbolically dominated group, who have limited or no proficiency in the dominant language.

Bourdieu's theory was used to explain challenges Rwandan secondary school CSE teachers face in accessing English-language instructional materials. Most of them were trained in French but later had to shift to EMI when Rwanda adopted it in 2008. The same challenge confronts new teachers, many of whom still have limited English proficiency because they were taught by tutors with francophone backgrounds who themselves were caught up in the country's adoption of EMI. From Bourdieu's perspective, the linguistic capital Rwandan CSE and EMI teachers had built through French suddenly lost much of its value when English became the dominant form of capital in both the classroom and the wider digital world. In other words, teachers with limited English competencies enter the online space with less capital, which restricts their ability to search for, evaluate, and adapt internet resources for teaching CSE, even when the necessary infrastructure is available.

Complementing Bourdieu's theory, Warschauer's (2004) Social Embeddedness of Technology framework explains how a language may become a barrier to technology use. Warschauer's framework demonstrates that access to technology does not only depend on the mere availability of infrastructure but also on four interconnected elements he labels resources: physical, digital, human, and social. Physical resources include infrastructure, devices and connectivity, while digital ones involve the content and

language of the technology. As for human resources, they refer to the literacy and education levels required to operate or engage with the technology. Social resources involve the availability of institutional and community-based support that enables users to benefit from the technology. Warschauer (2004) considers language an important resource, which is also critical to this study. For him, a language is a digital resource which is embedded in the design and content of the internet. He also treats it as a human resource that users must be equipped with to access online spaces. Consequently, if either resource is missing, technology or the internet becomes structurally inaccessible, regardless of users' access to physical resources and connectivity. Specifically, Warschauer's framework explains the situation of Rwandan CSE teachers who have internet access in their schools, but lack the English proficiency required to locate, comprehend, and adapt online instructional materials. In other words, their access problem is not caused by a lack of infrastructure and connectivity; rather, it arises from the linguistic architecture of the internet and digital content dominated by English, as a digital resource, and teachers' limited English as a human resource.

Overall, Bourdieu's theory explains how the shift from French to English-medium instruction devalued the Rwandan secondary school teachers' French linguistic capital they had accumulated over decades, turning them into symbolically dominated agents with diminished capacity to access online teaching materials in English, the dominant language of the internet. As for Warschauer's (2004) Social Embeddedness of Technology framework, it explains how this linguistic barrier negatively impacts technology integration. It demonstrates that physical internet access is insufficient for individuals to meaningfully use online content without adequate digital and human resources, specifically, teachers' proficiency in English.

2.5 The Gap in the Literature

The above literature review shows that there are three strands that intersect each other but have largely been studied independently. Firstly, research evidence shows that, in addition to infrastructural factors, the integration of the internet into education is also influenced by teacher-level and contextual barriers. Secondly, while some studies have examined the impacts of EMI policies implementation on teaching and learning practices, there has been little focus on how those impacts shape teachers' search for online materials. Finally, although CSE implementation in Rwandan schools is hindered by documented cultural and religious beliefs and resistance, it is further compounded by teachers' limited English language proficiency, which makes it difficult for secondary school teachers to access online CSE instructional resources. This language barrier has not been thoroughly examined in the context of Rwanda. It is particularly important to consider this since the scarcity of textbooks and the absence of CSE materials in

Kinyarwanda force teachers to rely almost entirely on online resources, which are mostly in English.

When combined, these gaps clearly indicate one important deficiency in the literature: a dearth of research on how teachers' English-language proficiency serves as a non-infrastructure barrier to integrating the internet into teaching CSE in Rwanda's post-language-shift environment. This study fills that void by placing language proficiency at the nexus of digital access and subject-matter instruction.

3. Methodology

3.1 Research Design

The study employed a quantitative approach and a cross-sectional descriptive survey design. The design was appropriate for describing the distribution of variables across the sampled population at a single point in time.

3.2 Setting, Sampling and Sample Size

The study was conducted in secondary schools selected from the Southern Province of Rwanda. The schools were purposively selected because they were connected to the internet. This choice was appropriate as the research focused on non-infrastructure rather than access-related barriers to internet integration in education. Individual teachers were not directly selected; instead, subjects with CSE content were chosen, then their teachers became respondents. As mentioned earlier, in the Rwandan national curriculum, CSE is not a standalone subject; it is embedded in other school subjects such as General Studies and Communication Skills, Biology, Languages (English, French, Kinyarwanda, Kiswahili), and Religious Education (Rwanda Education Board, 2015; Mbarushimana et al., 2023). Therefore, purposive sampling was used, and only CSE teachers working in schools with internet connectivity were included. The sampling technique was chosen to align the sample with the research question and to minimise bias. This study sampled and distributed questionnaires to 250 respondents drawn from 39 secondary schools. However, 207 questionnaires were returned, meaning a return rate of 82.8%. Respondents included teachers of subjects with CSE content. The participants represented diverse demographic characteristics, including gender, age, and teaching experience.

3.3 Research Instrument, Data Collection and Analysis

This study used a questionnaire to collect data. Respondents were asked to indicate, among English,

French, or Kinyarwanda, the language they used to search for instructional materials online. They were then asked whether the language they used to search for resources online was the medium of instruction during their secondary and university education. Finally, they provided information on the frequency with which they encountered difficulties when searching for instructional materials online. This question was rated on a four-point Likert scale: Never, Rarely, Sometimes, and Always. Data were analysed with Stata version 14.2 using descriptive statistics, and results are presented in tables showing frequencies and percentages to enhance clarity and facilitate interpretation.

3.4 Ethical Considerations

This study was conducted after ethical approval was granted by the Institutional Review Board of the University of Rwanda. As the study took place in schools, permission was obtained from the headteachers. Each questionnaire included an introduction providing respondents with information about the researcher and the purpose of the study. There was also a statement which clarified that participation in the study was voluntary and that respondents could withdraw at any time. They were assured of confidentiality, as the questionnaire was anonymised: neither participants' nor their schools' names were recorded. Data were stored securely and accessed only by the researcher to ensure compliance with ethical standards of privacy and confidentiality.

4. Results and Discussions

4.1 Introduction

This section presents the results of the study. It consists of four sub-sections organised in accordance with the research objectives: languages used by teachers to search for instructional materials online; the relationship between teachers' media of instruction during their secondary and university education, and the languages they use when searching for teaching resources online; and the frequency of language difficulties they experienced during their online searches.

4.2 Languages Used by Teachers to Search for Instructional Materials Online

Respondents were asked to indicate the language they used when searching for CSE teaching materials. The data were analysed and presented in frequencies and percentages, as displayed in Table 1.

Table 1: Language Used by Teachers when Searching for Information Online

Language used when searching for information online	Frequency	Percent
Kinyarwanda	1	0.48
French	10	4.83
English	196	94.69
Total	207	100.00

Source: Researcher's field data

As Table 1 shows, most respondents (94.69%) reported using English when searching for CSE instructional materials online, while a small percentage relied on French (4.83%), and only one teacher (0.48%) used Kinyarwanda. The results indicate the extent to which a language policy, global EMI trends, and online resource availability converge to shape teachers' choices when it comes to their online searches for instructional materials. Specifically, Rwandan secondary school teachers' adoption of English reflects Rwanda's 2008 policy shift to English-medium instruction and the recognition that most online educational resources are in English. Further, French's limited use by the teachers suggests its declining role in Rwanda's education system. Although it served as the medium of instruction for more than five decades, it is no longer preferred by teachers when seeking teaching materials online. As for Kinyarwanda, despite its status as the national language and mother tongue of almost all Rwandans, it is almost absent in teachers' online searches for educational resources. This may explain a lack of CSE educational materials in the local language online, which also suggests a disadvantage for teachers with limited English proficiency.

4.3 Influence of Teachers' Languages of Instruction during their High School and University Education on their Searches for CSE Instructional Materials

Before the adoption of EMI, many Rwandan teachers studied in Rwanda under the French medium of instruction;

others received their education from neighbouring countries where the medium of instruction differed from that of Rwanda. French was and is still the medium of instruction in Burundi and the Democratic Republic of Congo (DRC), while English was and is still the medium of instruction in Uganda, Kenya, and Tanzania. Therefore, teachers were asked to indicate whether the language they used to search CSE teaching materials online was the same as the language of instruction during secondary and university education. The results are presented in the following sub-sections.

4.3.1 Teachers whose Language of Instruction was French during Secondary Education

As Table 2 shows, most respondents (69.74%) reported that English, the language they most often used for online searches, was not their medium of instruction during their secondary education, while only a third (30.26%) indicated it was. Of the few teachers who used French (8 out of 207), most of them (80%) reported that French was their medium of instruction. These results suggest that during secondary education, French was the dominant language of instruction for most teachers. It was also the language most of them had been familiar with since their primary education.

Table 2: Language Used by Teachers Online vs their Medium of Instruction during their Secondary Education

Language used online	The language used online was the language of instruction at the secondary level		
	Yes	No	Total
English	59 (30.26)	136 (69.74)	195 (100.00)
French	8 (80.00)	2 (20.00)	10 (100.00)
Kinyarwanda	0 (0.00)	1 (100.00)	1 (100.00)
Total	67 (32.52)	139 (67.48)	207 (100.00)

Source: Researcher's field data; Between brackets: row percentages

4.3.2 Teachers whose Language of Instruction was English during their University Education

As Table 3 indicates, most respondents (80.10% of the 196 who used English to search for instructional materials online) reported that English was their medium of instruction during their university education. In addition, a small percentage of respondents (19.90%) who used English to search for CSE teaching materials online stated that English was not their language of instruction at university. These results suggest that most teachers who

participated in this study received their university education in English after Rwanda shifted from French to English. These two different media of instruction in the educational trajectory of a generation of teachers illustrate the transitional nature of Rwanda's educational language policy shift in 2008. French was the medium of instruction during their secondary education, whereas English dominated at the university level.

Table 3: Language Used by Teachers Online vs their Medium of Instruction at University

Language used online	Language used online was the language of instruction at university		
	Yes	No	Total
English	157 (80.10)	39 (19.90)	196 (100.00)
French	9 (90.00)	1 (10.00)	10 (100.00)
Kinyarwanda	0 (0.00)	1 (100.00)	1 (100.00)
Total	166 (80.19)	41 (19.81)	206 (100.00)

Source: Researcher's field data; Between brackets: row percentages

4.4 Frequency of Language Difficulties Experienced by Teachers in Searching for Instructional Materials Online

This section examines the extent of language challenges experienced by teachers when they search for teaching

materials online. They were asked to rate the frequency of their challenges. Results are presented in Table 4.

Table 4: Teachers' Frequency of Language Difficulties when Searching for CSE Teaching Materials Online

Difficulty Level	Language used to search for information online				
	Freq. and %	English	French	Kinyarwanda	Tot.
Always	Freq.	10	0	0	10
	Row %	100.00	0.00	0.00	100.00
	Col %	5.10	0.00	0.00	4.83
Sometimes	Freq.	93	6	1	100
	Row %	93.00	6.00	1.00	100.00
	Col %	47.45	60.00	100	48.31
Rarely	Freq.	76	4	0	80
	Row %	95	5	0	100
	Col %	38.78	40.00	0.00	38.65
Never	Freq.	17	0	0	17
	Row %	100.00	0.00	0.00	100.00
	Col	8.67	0.00	0.00	8.21
Total	Freq.	196	10	1	207
	Row %	94.69	4.83	0.48	100.00
	Col %	100.00	100.00	100.00	100.00

Freq.: Frequencies, Row %: Low percentages, Col %: Column percentages

Source: Researcher's field data

Respondents were asked to rate their level of language difficulties online, on a four-point Likert scale (Never, Rarely, Sometimes, Always). Since teachers used English, French, or Kinyarwanda to search for teaching materials online, a variable on language difficulties was cross-tabulated with the language used to search for instructional materials online. The table presents frequencies, row percentages (difficulty levels), and column percentages (language). Concerning language difficulties in general, among 207 teachers who participated in this study, 10 (4.83%) reported always experiencing language difficulties. These were 5.10% of all respondents who used English. Another 100 teachers (48.31%) indicated that they sometimes faced difficulties. They include 93 English users, 6 French users, and 1 Kinyarwanda user. Further, another 80 teachers (38.65%) reported rarely experiencing difficulties, while 17 (8.21%) never encountered challenges.

Among 196 respondents (94.69% of all 207 respondents) who used English to search for instructional information online, more than half of them (52.55%) reported always and sometimes experiencing difficulties, that is, 5.10% and 47.45%, respectively. In contrast, less than half of the surveyed teachers reported that they rarely (38.78%) and

never (8.67%) faced challenges online. In other words, 52.55% of teachers reported experiencing a high level of challenges online, whereas 47.45% encountered relatively low levels of difficulties. These findings appear to indicate that, despite their university education in English, more than half of the surveyed teachers experience English language challenges when searching for CSE teaching resources online. This further suggests that because most of them received part of their primary and the entire secondary education in French before shifting to English at the university level, the transition may not have equipped them with enough command of the English language. As a result, they face persistent challenges using English to search for teaching materials online.

4.5 Discussion

This study's findings are discussed in four points in accordance with its research objectives. The first is the paradox of teachers using English to search for instructional materials online despite their limited proficiency in the language. The second discusses the relationship between teachers' media of instruction at secondary and university levels and the language they used to search for teaching resources online. The third highlights

teachers' limited command of English as a barrier to technology integration in teaching. Finally, the fourth addresses the educational implications of teachers' English language difficulties.

4.5.1 Teachers' Paradox of Using English Online Despite Self-Reported Difficulties in the Language

The findings of this study indicate that 94.69% of surveyed teachers preferred English to French and Kinyarwanda when searching for instructional materials online, yet 52.55% reported difficulties finding CSE teaching resources online. This discrepancy is corroborated by the official government report, which shows that only 38% of secondary school teachers meet the required English proficiency benchmark (Republic of Rwanda, 2024, p. 94). This apparent paradox may be explained by Bourdieu's theory of linguistic capital and symbolic violence (Bourdieu, 2003). Because the content of most websites is available in English, English becomes the dominant and most rewarded form of linguistic capital. Therefore, it is a rational strategy for the teachers to use English even if their competence in it is limited because the other available alternatives, that is, French and particularly Kinyarwanda, yield limited or poorer returns in terms of the quantity and quality of online instructional materials. Consistent with Bourdieu's theory, teachers who can effectively use English online have greater symbolic and practical capital than their colleagues who cannot, which enables them to access global knowledge. On the other hand, those using French or Kinyarwanda encounter barriers in integrating internet resources into teaching, as these other languages provide access to fewer materials than English. Teachers' pragmatic adoption of English despite their documented limited command of the language is also in line with what Bourdieu & Passeron (1977/1990) call the internalisation of a dominant language by people with different people in a given field, such as education. The paradox also reflects the symbolic violence of EMI adoption, where teachers must operate in a language that grants access to resources but simultaneously excludes them through limited proficiency. In addition, Rwanda's educational language policy shift to EMI requires teachers to use English in instruction (Chinwa & Chikomo, 2025), which in turn obliges them to use English when searching for teaching resources online.

The paradoxical preference for English by teachers despite self-reported difficulties online because of the availability of a larger amount of professional and educational materials in English than in other languages has also been observed in previous studies (Crystal, 2001; Yaman, 2015). Crystal (2001) has observed that English beats other languages in terms of relevance and currency. The results of this study are also consistent with reports of research conducted in other African linguistic contexts. Case studies conducted in Ethiopia, Tanzania and Uganda show that similar patterns of constrained technology users due to English language limitations (Meital & Jason, 2022).

4.5.2 Relationship of Prior Media of Instruction and Teachers' Digital Information-Seeking

This study found that most teachers' online search language is influenced more strongly by the language of instruction they experienced at university (English) than by that of secondary education (French). The results show that among teachers who used English to search for CSE teaching materials online, 69.74% reported that English was not the medium of instruction during their secondary education, suggesting that it was mostly French. In addition, findings show that English was the medium of instruction for most of them during their university education (80.10%). These results reflect the linguistic shift that accompanied Rwanda's transition from French to English-medium instruction (EMI). They are consistent with studies showing that educational and professional practices tend to align with the language currently valued within the education system, broader knowledge economy, and other related advantages, rather than with earlier schooling experiences (Barrett DeWiele & Edgerton, 2024; Abrar-ul-Hassan, 2021). Research on Rwanda's EMI policy has similarly shown that teachers have adapted to English despite their prior education in French (Chinwa & Chikomo, 2025) and their linguistic challenges in English are reported in this study. The findings can also be interpreted through Bourdieu's concepts of linguistic capital and symbolic violence (Bourdieu, 2003; Bourdieu & Passeron, 1977/1990). As the dominant language of the internet, English provides for more information than French. Even when users rely on French, they face the added burden of translating materials into English. Moreover, they are compelled to use English because the linguistic architecture and content of websites, combined with Rwanda's compulsory use of English as the medium of instruction, leave them with little choice but to operate online in English rather than in other languages (Chinwa & Chikomo, 2025). This is also supported by Warschauer's Social Embeddedness of Technology framework, which argues that technology use is shaped by broader social and institutional contexts (Warschauer, 2004). Therefore, Rwandan teachers' use of English when searching for instructional resources online is determined by English's status as the medium of instruction in Rwanda and its dominance in online educational resources.

4.5.3 Teachers' Limited English Proficiency as a Barrier to Technology Integration

This study's findings indicate that 52.55% of Rwandan EMI teachers reported experiencing language difficulties when searching for CSE teaching materials online in English, which may constrain their integration of digital technologies in education. From the perspective of Warschauer's (2004) Social Embeddedness of Technology framework, these findings confirm that the divide these teachers confront is not infrastructural, as participants were sampled from schools connected to the internet. Rather, they face a dual structural barrier: the linguistic architecture of the internet and its contents is dominated by English, while teachers on their part lack adequate English

proficiency to engage meaningfully with that content. In Warschauer's terms, these teachers are simultaneously disadvantaged in terms of *digital resources* and *human resources*. First, at the level of digital resources, English is embedded in the design and content of the online spaces or the internet as a technology. In fact, the linguistic architecture of the internet is structurally dominated by English. By the end of 2025, it accounted for nearly half (49.2%) of all websites in the world. It was followed by Spanish, which had a share of only 6% (Tila, 2026). This dominance of English appears to increase, as in June 2026, English was the language of 49.7% of all websites (Q-Success, 2026). These statistics are in line with previous literature confirming that English is the dominant language of the internet, since a large quantity of online information is available in it (Rose et al., 2022; Ali, 2011). This dominance means that online educational materials, including CSE resources, are also mostly available in English. In other words, teachers with limited English proficiency struggle to access them despite their connectivity status.

Second, the *human resources* dimension is illustrated by the proportion of surveyed teachers (52.55%) who reported experiencing difficulties when searching for CSE materials online. This finding is contextualised by official Rwandan data that reveals that, in 2024, the proportion of secondary school teachers meeting the required English proficiency was 38% (Ministry of Education (MINEDUC), Rwanda, 2024, p. 94). These facts suggest that a considerable proportion of Rwandan secondary school teachers are likely to struggle to use the internet for instructional purposes, as they lack adequate English proficiency.

This study demonstrates that English is a cross-cutting barrier that operates at the level of both the architecture and content of the internet, and at the level of a user's linguistic capacity. In other words, it functions as a barrier even where physical connectivity is present. Consequently, teachers' limited English proficiency negatively affects the quality of their online searches for teaching purposes. It can also lead to unequal access to online knowledge among equally connected teachers due to their different English proficiencies.

4.6 Educational Implications of Teachers' Language Challenges Online

As mentioned earlier, this study's findings show that half (52.55%) of the surveyed Rwandan secondary school teachers experience significant challenges when accessing internet resources in English. Their educational implications warrant careful consideration, as they may affect many learners. In 2025, the standard Pupil Classroom Ratio (PCR) in Rwandan secondary schools was 46:1 (Ministry of Education, Rwanda, 2025, p. 25). Additionally, in the Rwandan secondary school educational system, a teacher often teaches more than one subject to more than one class or level; that is, one teacher is likely to teach hundreds of learners every year. Therefore, if 52.55% of teachers struggle to access

instructional materials online, it implies that many learners are taught under linguistically constrained conditions. In other words, teachers' English challenges may prevent them from obtaining appropriate materials, and even when such materials are available, they may struggle to teach effectively because English is the medium of instruction. This also suggests that learners may also fail to acquire adequate English proficiency and subject knowledge in areas such as CSE. This is contextualised by official Rwandan data that indicate that, in 2023, only 47.15% of third-year secondary school learners met the required "national proficiency benchmarks in English" (NESA, 2023, p. 7). In addition, an empirical study involving primary senior 6 and secondary senior 3 girl learners reported that they were unable to talk during classroom activities, excluding them from engaging in teaching-learning activities (Kuchah et al., 2024). Though the study argues that ethno-cultural norms may have influenced girls' silence in the classroom, it also indicates that their limited English proficiency has contributed to the problem.

Furthermore, the findings have consequences for CSE instruction in Rwanda. Rwandan CSE teachers seeking online resources for such a culturally sensitive subject face a compounded challenge. They struggle not only with their limited English proficiency but also with the cultural and religious acceptability of searching for and teaching CSE materials. When this study was being conducted, there were textbook shortages; therefore, the internet was not merely a supplementary resource but often the primary one. The language barrier, in turn, had direct implications for imparting quality CSE instruction to learners. The most vulnerable learners are those taught by teachers who consistently experience language difficulties. In other words, teachers with limited English proficiency are less likely to access high-quality online materials and may instead rely on resources that are less informed, less up-to-date, and potentially less accurate. Consequently, this situation undermines not only learners' acquisition of English literacy more broadly but also their mastery of CSE as a subject area. This conclusion is reinforced by prior studies emphasising the role of teachers as linguistic models for their learners (Kroik, 2022; McCarthy & Farr, 2022).

5. Conclusion and Recommendations

5.1 Conclusion

This study examined the extent of Rwandan secondary school teachers' English language challenges when searching for CSE instructional materials online. This conclusion is organised in line with the study's research questions. First, the study found that most teachers (94.69%) used English to search for instructional materials online. This reflects the dominance of English on the internet and teachers' decision to choose the language most likely to provide them with quality instructional materials. Second, findings show that although most teachers were

educated in French at the secondary level and English during their university education, most of them conducted online searches in English. This suggests that their online practices are strongly shaped by their medium of instruction at university. Third, more than half of the respondents (52.55%) reported experiencing linguistic difficulties when searching for teaching materials online using English. These language difficulties are most likely explained by a combination of the French-medium instruction background, the dominance of Kinyarwanda in everyday communication as the only national language, and the quality of English language instruction.

5.2 Recommendations

The findings of this study show that the educational implications of teachers' limited English proficiency remain considerable in Rwandan secondary schools. Therefore, the following recommendations should be considered by educational stakeholders:

1. This study's findings have shown that many teachers use English to search for CSE instructional resources online despite their limited proficiency in it. The study recommends organising teacher training programmes to enhance their English proficiency.
2. The findings also show that, to source CSE instructional materials, Rwandan secondary school teachers rely on the internet, a technology whose linguistic architecture and content are dominated by English. Therefore, there should be training in English literacy coupled with digital literacy training, aiming at improving teachers' ability to navigate online platforms and evaluate resource quality.
3. Policymakers should be attentive to the impact of teachers' English proficiency and the dimension of cultural and religious beliefs on CSE instruction. Interventions should integrate English proficiency enhancement with culturally responsive CSE teaching strategies that enable teachers to engage confidently and critically with CSE digital resources.

This study has limitations that may restrict the interpretation and generalisability of its findings. First, it relied on self-report data, which might be subject to social desirability bias. Second, its cross-sectional design precludes causal inference. Third, the sample, while adequate for the study's purpose and research questions, was obtained through purposive sampling and drawn from a single country, which suggests that it may not be generalised to all schools in Rwanda and other SSA contexts. However, the study may be generalised to schools with internet connectivity in Rwanda. Future research should use probability sampling, drawing on a large sample to generate results that can be generalised to many

contexts. Other studies using mixed-method designs should investigate the effects of the EMI policy shift on the Rwandan educational system and the employability of graduates.

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