Innovations in English Language Education: New Issues and Trends

Edited by Bronwen Hughes and Margaret Rasulo

Università di Napoli L'Orientale

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INDEX

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Questioning Across Contexts: A Comparative Analysis of Higher-Order and Lower-Order Questions in CLIL and EMI

Abstract

This study investigates questioning techniques in Content and Language Integrated Learning (CLIL) and English Medium Instruction (EMI) classrooms, focusing on higher-order and lower-order questions as key pedagogical tools for language acquisition and content comprehension. Drawing on Bloom's Taxonomy, the research categorizes lower-order questions as those fostering recall and comprehension, while higher-order questions promote critical thinking, analysis, and synthesis. Conducted in Italian high schools and universities, the study utilized classroom recordings of CLIL and EMI lessons in science and economics to examine the use of questioning techniques by teachers and the elicited responses from students. The findings reveal that lower-order questions provide essential scaffolding for language and foundational content, which is crucial in multilingual classrooms where students are often learning through a non-native language. The study underscores the effectiveness of combining both question types to balance comprehension with deeper cognitive engagement. In CLIL and EMI contexts, the sequential use of lower-order questions for foundational understanding and higher-order questions for analytical depth promotes a holistic approach to learning. By implementing a qualitative approach to the analysis of dialogical questioning, this study provides evidence that an integrated questioning strategy fosters a dynamic, inclusive learning environment, enabling students to progress from basic knowledge acquisition to critical, independent thinking skills.

Keywords: Bloom's taxonomy, HO questions, LO questions, CLIL, EMI, ELT

1. Introduction[1]

Over the years the field of English Language Teaching (ELT) has become increasingly complex, impacted by evolving educational practices, technological advancements, and shifting linguistic landscapes. Key

[*] Bronwen Hughes, University of Naples 'Parthenope', bronwen.hughes@uniparthenope.it; Margaret Rasulo, University of Campania 'L. Vanvitelli', margherita.rasulo@unicampania.it.

[1] The authors jointly contributed to the design and implementation of the research, and to data analysis and discussion; specifically, Margaret Rasulo is responsible for the sections: Introduction; Theoretical background: The adoption of CLIL in Italy; Questioning Techniques in CLIL and EMI Classrooms; Dataset description; Conclusion; Bronwen Hughes is responsible for the sections: Context of the study; The adoption of EMI in Italy; Higher-Order (HO) and Lower-Order (LO) Questions; Methodology; Findings.

challenges today include fostering multilingualism and inclusion, integrating artificial intelligence (AI), addressing the role of English as a lingua franca and implementing both Content and Language Integrated Learning (CLIL) and English Medium Instruction (EMI). Each of these areas has implications upon how English is taught and learnt, calling for new strategies and perspectives.

Today, English is not taught in isolation but rather within a multilingual context. In many classrooms, students come from diverse linguistic backgrounds, which presents unique challenges and opportunities. Educators need to adopt inclusive teaching practices that leverage multilingualism as an asset rather than a barrier. According to Escobar and Dooly (2023), multilingual classrooms promote better cognitive development and enable students to transfer knowledge between languages, fostering a deeper understanding of content. Teaching in these environments, however, also requires additional skills and resources, as language instructors must find ways to balance the different linguistic needs of students while maintaining English proficiency as a learning outcome.

The rapid, unceasing rise of AI presents both promise and challenges for the teaching and learning of English. AI tools can support language learning by offering personalized feedback, enabling practice, and allowing self-regulation (British Council 2023). Tools such as Grammarly and other language-specific AI applications have been shown to enhance learners' grammatical accuracy and vocabulary (Lo 2023). AI-driven tools can also help students develop speaking skills by providing real-time feedback on pronunciation, pitch, and intonation (Shivakumar *et al.* 2019). It must be said, however, that while AI can enhance learning, it cannot replace the nuanced, context-driven guidance provided by human teachers (Wei 2023).

The role of English as a global lingua franca is both a driving force and a challenge in ELT. The language serves as a bridge for communication across diverse linguistic backgrounds, making English proficiency essential in many international contexts. However, the dominance of English also raises questions about linguistic imperialism, with other languages and cultures being marginalized in favour of English (British Council 2023). In response, some educational systems now tend to emphasize a more pluralistic approach to English, promoting an understanding of different 'World Englishes'. This approach allows learners to recognize that English varies globally and helps them develop skills for cross-cultural

communication. It also encourages students to maintain pride in their native languages and cultures while simply engaging with English as a tool for global interaction (Tech.ed.gov 2023).

CLIL and EMI have grown in popularity in recent decades, especially in non-English-speaking countries where English is used as the language of instruction in scholastic, academic and professional contexts. While EMI aims to prepare students for successful placement in global job markets, it can also present challenges for both students and instructors. Conversely, in CLIL contexts, students often struggle with the subject matter due to language barriers and low linguistic competence; this can affect their comprehension and academic performance (York University 2023). In both the CLIL and EMI settings, educators need in-depth training to teach their complex subjects in English effectively. EMI students, however, are subjected to a 'double burden', as they are expected to grasp not only academic content but also to improve their English proficiency without any dedicated language input. To address these challenges, some institutions are currently developing bilingual programs, using scaffolding techniques, and providing additional language support.

In the main, the challenges in ELT today reflect broad societal changes, technological advancements and the ever-encroaching importance of global communication. As ELT continues to evolve, it will be ever more essential to develop adaptable teaching strategies that support diverse learners in a rapidly changing world.

1.1. Context of the study

Research into classroom discourse has highlighted questioning techniques as a key pedagogical tool that can significantly shape student engagement and cognitive development. This study seeks to investigate the comparative use of higher-order and lower-order questions within the two distinct instructional contexts of CLIL and EMI. Based on and in line with Bloom's Taxonomy of learning outcomes, each type of question, in a similar manner, plays a distinct yet complementary role in the learning process. The Taxonomy provides a hierarchical classification of cognitive skills that are involved in learning. It is commonly represented as a pyramid with six levels, arranged from basic to complex cognitive functions: remembering, understanding, applying, analysing, evaluating, creating.

Lower-order questions generally target the first two levels (Remembering and Understanding), while higher-order questions are associated with the upper levels (Applying, Analysing, Evaluating, and Creating). By examining both types of questions posed by teachers, and the responses elicited from students, we aim to provide evidence of the crucial role played by language input (as opposed to mere subject-matter input) while acknowledging the potential differences in cognitive demands and interactional patterns across these educational frameworks.

Analysing questioning strategies in CLIL and EMI settings is essential, since it is only by understanding the nuances of questioning in these contexts that valuable insights into effective teaching strategies and enhanced learning outcomes can be obtained. Particularly beneficial in studying interactive processes, language use, and pedagogical practices is the qualitative analysis of authentic classroom recordings which provide a rich, contextualized understanding of teaching and learning dynamics. Such analysis is advantageous in educational research as it allows investigators to capture the complexity of classroom interaction. Here follows a detailed account of the benefits of qualitative analysis in this context, drawing on the relevant literature.

2. Theoretical background

Classroom environments are multifaceted, involving dynamic interaction among teachers, students, and the instructional content. Qualitative analysis allows researchers to capture these complexities more deeply than quantitative methods, which may oversimplify classroom processes (Lyle 2003). Through approaches like conversation analysis (CA) and interaction analysis, researchers can focus on subtleties, such as turn-taking, body language, and non-verbal cues (Mercer 1995), which reveal how teachers manage discussions and scaffold student understanding. Lyle (2003), for instance, argues that qualitative analysis is indispensable for observing how teachers adapt their questions based on students' responses in real-time. This adaptability in questioning is a critical component of effective teaching, particularly in interactive pedagogies like inquiry-based learning.

Qualitative methods thus allow researchers to unpack the micro-level processes involved in teaching, providing insights into the complexities of classroom interaction that are often missed by quantitative approaches.

Qualitative analysis further provides insight into pedagogical strategies, helping researchers understand how teachers create an inclusive learning environment, manage student engagement, and employ various teaching techniques. Researchers like Walsh (2011) highlight that qualitative methods allow for a detailed analysis of how teachers structure lessons and respond to students' needs, which can reveal the efficacy of different instructional approaches. Through inductive coding, for example, researchers can categorize and interpret teaching strategies observed in recordings, enabling them to identify patterns and themes. This approach helps to elucidate the link between specific teaching practices and student outcomes, contributing to the development of pedagogical theories. For example, Alexander (2008) uses qualitative analysis in studying dialogic teaching, showing how the use of open-ended questions promotes critical thinking and student engagement.

Classroom recordings, such as those analysed in the present study, provide authentic data on how language is used for communication and learning. By analysing these recordings qualitatively, researchers can explore how teachers and students use questioning, negotiate meaning, and clarify misunderstandings. Seedhouse (2004) emphasizes the importance of CA in analysing classroom discourse, as it enables researchers to focus on language as a vehicle for learning. This approach allows for an in-depth examination of how language facilitates cognitive development and supports various learning processes. Mercer's (1995) work on classroom discourse demonstrates that qualitative analysis is effective in identifying how teachers use language to build cumulative and exploratory talk, which helps students articulate their thoughts. This type of analysis can reveal instances where teachers scaffold learning by guiding students through complex reasoning or problem-solving processes, offering insights into effective communication strategies in teaching.

In the field of teacher training and professional development, there is abundant literature on the qualitative analysis of authentic classroom recordings which offer valuable insights into the implementation of effective and less effective teaching practices. Hammersley and Atkinson (2007) argue that qualitative findings from classroom recordings provide a realistic picture of teaching, enabling trainee teachers to reflect on and improve their practices. In teacher education programs, recordings and their

analyses can be used as reflective tools to demonstrate successful classroom management strategies, effective questioning techniques, and scaffolding methods. Qualitative analysis provides a detailed account of these practices, which can help new teachers develop practical skills for managing diverse classrooms and engaging students in meaningful learning activities.

Finally, in terms of methodological rigour, qualitative analysis of classroom recordings such as the ones employed throughout our study, supports theory development by allowing researchers to observe and interpret teaching and learning phenomena in a natural setting. This approach aids in the construction of theoretical frameworks that explain the complexities of classroom interactions. For instance, grounded theory methods allow researchers to build theories rooted in empirical data (Charmaz 2006), which is essential for developing nuanced understandings of classroom discourse and instructional methods. Moreover, qualitative analysis contributes to methodological rigor by allowing for triangulation and cross-validation of findings through multiple perspectives (Denzin/Lincoln 2011).

3. Origins and background of CLIL and EMI in Italy

3.1. The adoption of CLIL in Italy

CLIL emerged in Europe during the early 1990s as a method for integrating language learning with subject-matter teaching (Marsh, as cited in Escobar/Dooly 2023). Its goal was to enhance students' multilingual competence and subject-specific skills in non-linguistic subjects through a foreign language, typically English. This approach stemmed from the European Union's (EU) emphasis on promoting multilingualism and cultural understanding as a cornerstone of European identity and student mobility (see, for example, the Maastricht Treaty 1992). The EU's multilingual education strategy, with CLIL at its core, encouraged member states to integrate it into their curricula.

Italy's interest in CLIL began in the late 1990s with experimental and pilot programs in secondary schools. These initiatives were often supported by the European Commission, which encouraged Italy to enhance students' linguistic capabilities through CLIL teaching.

The EU's 2006 Recommendation on Key Competences for Lifelong Learning emphasized multilingualism, providing further impetus for CLIL adoption in Italy. Italian educators saw this as an opportunity to

modernize the country's language education system, shifting the focus from traditional grammar and literature to practical language skills. EU-funded projects, such as Socrates and Erasmus, played a crucial role in promoting CLIL by supporting teacher training and curriculum development.

CLIL was progressively introduced into the Italian school system by means of a number of legislative acts: the so-called *Riforma Gelmini* (Law 133/2008) made it mandatory for upper secondary schools to offer at least one non-linguistic subject taught in a foreign language during the final year of tuition. In 2010, a further ministerial decree (249/2010) outlined teacher qualifications for CLIL, requiring C1 language proficiency and specific training. The National Plan for Digital Education (PNSD) in 2015 then introduced digital tools and online resources, which have proven beneficial for CLIL instruction.

3.2 The adoption of EMI in Italy

English Medium Instruction (EMI) refers to the practice of teaching academic subjects in English rather than the native language of the students. It has become increasingly popular in higher education institutions worldwide, including Italy where it is primarily implemented at the tertiary level, particularly in graduate programmes. In recent years, Italian universities have increasingly offered courses in English especially in the fields of Science, Technology, Engineering and Mathematics for the purposes of attracting international students, enhancing global competitiveness, and preparing students for international careers.

In much the same way as CLIL, EMI in Italy was introduced by key legislative acts. The Ministerial Decree 270/2004 allowed Italian universities more flexibility in offering programs in foreign languages, thus contributing to the growth of EMI. In 2013, the Council of State Ruling on EMI emphasized a balanced approach, allowing universities to offer English-language courses alongside Italian. The *Piano Nazionale Scuola Digitale* in 2015 further encouraged the use of English-language resources in secondary and higher education, facilitating the integration of EMI through digital platforms.

It can therefore be said that in recent years, CLIL and EMI have gained significant traction in Italy, driven by various factors, including EU policies, national educational reforms, and the global demand for English language skills. While both approaches offer unique opportunities for language

learning and content acquisition, their successful implementation requires careful planning, adequate teacher training, and appropriate resources. These methodologies are, however, not devoid of challenges. One major hurdle is the limited number of teachers with the required C1 language proficiency together with the specifically required teaching qualifications. To address this, the government has invested in professional development programs and explored alternative models, such as co-teaching with language specialists. Despite these efforts, the full potential of CLIL and EMI in Italian education is yet to be realized. All told, as Italy continues to navigate the complexities of global education, CLIL and EMI will likely remain important components of its language education landscape.

4. Questioning techniques in CLIL and EMI classrooms

Effective questioning is essential in CLIL and EMI classrooms to support comprehension, language practice, critical thinking, and engagement with content. However, to make questioning effective, a number of pedagogical requisites must be observed. To begin with, allowing adequate wait time after asking a question encourages the students to engage in deeper thinking and provide more thoughtful responses (Rowe 1974). Scaffolding questions which provide hints or clues, and gradually increase in complexity can guide students towards a heightened awareness of the appropriate response (Alexander 2008). Such hints or clues can also facilitate the formulation of students' correct responses, especially when language barriers may hinder understanding. Repeating or rephrasing student responses can model correct language use and clarify content, while encouraging collaborative thinking and allowing students to articulate and refine their ideas. Reusing key vocabulary in different contexts further reinforces language learning and content understanding. Finally, crucial is the use of open-ended questions to promote critical thinking and extended language production, while closed questions can be used for checking comprehension.

4.1 Higher-Order (HO) and Lower-Order (LO) Questions

As previously mentioned, questions stand as a fundamental pedagogical tool that probe into students' previously acquired knowledge while laying the groundwork for the acquisition and assimilation of newly presented content. Question types serve different teaching and learning purposes

and can be categorized on the basis of their cognitive demands. Two major categories of questions are lower-order and higher-order types based on Bloom's taxonomy, which organizes cognitive skills from basic recall to complex analysis and creation.

Lower-order questions primarily focus on recall, comprehension, and basic application of knowledge. They require students to recall facts, define terms, or explain concepts in simple terms. Some examples of LO questions are:

- *What is the formula for gas?*
- *Can you define climate change?*

Such questions are also useful for checking understanding and building confidence, particularly for students with limited language proficiency. However, relying solely on lower-order questions can limit opportunities for deeper cognitive engagement.

Conversely, HO questions engage students in complex cognitive processes like analysis, synthesis, and evaluation as well as encourage them to draw connections, make inferences, hypothesize, and justify their thinking.

Some examples of HO questions are:

- *How can precipitation impact different ecosystems?*
- *Why do you think chemical reactions accelerate as the temperatures rise?*

While higher-order questions can be challenging for students with limited language skills, they are essential for promoting deeper understanding and fostering a more interactive and engaging classroom environment.

5. Dataset and methodology

5.1. Dataset description

This research is based on two recordings of high school CLIL science lessons conducted in English, and two recordings of university level EMI economics lessons. The former were carried out in two different upper secondary level schools in the province of Avellino, the latter in two universities also located in the south of Italy. Both the CLIL and EMI lessons lasted two hours each. In the CLIL classes there were respectively 25 and 28 students, whereas in the EMI classes there were 45 in the one

case, and 56 in the other. Both the high school groups and the university groups were specifically selected by the authors of this study on the basis of the teachers' English language competence which was, in all four cases, B2 or above in the Common European Framework of Reference for Languages (CEFR). The teachers' high level of language competence was deemed necessary due to the fact that the focus of this study is on the effective delivery and reception of the two interrogative typologies: lower order and higher order questions. In other words, this was to ensure that the teacher/student interaction was in no way impeded by language barriers (lexical, syntactic, morphological, prosodic). The student groups, conversely, as in most Italian school and university settings, were extremely heterogeneous, spanning from a B1 minus to a full B2. The teachers in both settings were instructed to ask a minimum of 5 questions belonging to each interrogative typology and to select different students each time as respondents.

5.2. Methodology

The aim of this research project is to observe and subsequently analyse high school and university classroom interaction in CLIL and EMI settings. By implementing an ethnomethodological approach (Creese/ Blackledge 2019) involving the audio recording of the four lessons under investigation, the study focuses on the emerging nature of lower order and higher order question-and-answer pairs, and their potential contribution in terms of tools to favour the acquisition of content and language in non-language subjects.

The investigative procedure adopted comprised a number of steps. We initially contacted the educators and students to ensure their participation and carry out ethics clearance. We then set up encounters and agreed on the data-collection procedure including anonymization of sensitive information. We subsequently provided educators with appropriate procedural guidelines (e.g., preparing students for observation and recording, illustrating the project and its aims and final benefit). The recording sessions and transcription of data followed with question types and responses being coded on the basis of the LO/HO question types. Linguistic analysis and interpretation of the data was then carried out.

6. Findings and discussion

6.1 Findings

In CLIL and EMI settings, such as the ones under investigation, using both lower-order and higher-order questions is crucial to effectively balance the transmission of language and content knowledge. In these settings, teachers and instructors aim not only to convey subject-specific content but also to facilitate language development, which is essential for students to engage meaningfully in discussions and demonstrate understanding. Employing both types of questions promotes a scaffolding approach, where lower-order questions support foundational knowledge while higher-order questions push students to synthesize, evaluate, and apply their understanding in complex ways.

Based on our findings, it emerged that lower-order questions, often referred to as factual or recall questions, are vital for building the essential vocabulary and knowledge needed for understanding subject-specific concepts. They require students to recall information, definitions, and basic explanations, which aids in reinforcing foundational concepts and language structures. This scaffolding is particularly important in CLIL and EMI settings, where students are not only grappling with new content but often doing so in a non-native language. For example, in our high school CLIL context, the question

What is the symbol of iron?

prompted students to recall the symbol 'Fe', reinforcing both the chemistry content and the relevant vocabulary. Similarly, asking

What is Avogadro's number?

supports both content acquisition (the fundamental constant) and language practice, as students articulated a specific numerical value in a scientific context.

Lower-order questions are also essential for developing procedural knowledge, whereby students learn how to approach problems in a structured way. For instance, the question

How do you calculate the molar mass of calcium carbonate (CaCO3)?

enables students to perform a calculation by summing atomic masses. This question reinforces fundamental skills and teaches them to apply specific

language patterns, such as articulating mathematical processes in words, which is an important skill when conducting scientific discussions.

Higher-order questions, such as those that ask students to analyse, evaluate, or create new ideas based on what they have learned, are instrumental in fostering deeper engagement with both content and language. In CLIL and EMI contexts, higher-order questions prompt students to use complex language structures and advanced vocabulary as they construct arguments or hypotheses. For example, in the university EMI setting we observed that the question

Why did Coca-Cola start replicating its factories in other countries?

encouraged students to consider economic strategies and express their opinions and ideas. This question required them to use language to explain causal relationships and discuss business concepts in English, thereby enhancing both cognitive and linguistic skills.

Higher-order questions also push students to make connections between ideas and to apply theoretical knowledge in hypothetical or real-world situations. For example, the question

Imagine you have a block of iron; how would you estimate the number of atoms in it using Avogadro's number?

encouraged students to integrate the concept of atomic structure with practical applications of the Avogadro constant. By responding to such questions, students practiced using technical language in an applied context, which strengthened their grasp of both scientific concepts and the language needed to discuss them.

An effective educational strategy in CLIL and EMI incorporates both types of questions in a complementary manner. Lower-order questions build confidence and familiarity with foundational terms and concepts, which are prerequisites for tackling higher-order questions. For instance, understanding the meaning of *specific heat* (a lower-order question) provides a stepping stone to higher-order questions about energy transfer, such as

What does it mean if a system is isolated in terms of internal energy?

Lower-order questions prepare students to respond to these more challenging prompts by providing the necessary linguistic and conceptual building blocks.

This integration also mirrors real-world learning, where foundational knowledge is used as a springboard for critical thinking and problem-solving. In a science class, students might begin with factual questions like

What are the three types of thermodynamic systems?

before progressing to questions that require them to analyse these systems in different contexts, such as

Can you imagine a situation with negative work?
How does it relate to energy transfer?

This approach helps students to see the relevance of foundational knowledge and understand its application in complex scenarios.

6.2 Discussion

Educators can maximize the benefits of integrating both types of questions by using a sequential questioning strategy, where lower-order questions build a base of knowledge that is then expanded upon with higher-order questions. This strategy helps to maintain a balance between comprehension and application, as students are given the time to solidify their understanding before moving into more analytical or evaluative responses. For instance, when discussing globalization in an EMI university course, beginning with a lower-order question such as

What is globalization?

allows students to anchor their understanding in a concrete definition before moving to a higher-order question like

How is it possible that a company makes a Foreign Direct Investment?

This methodical progression ensures that students are linguistically and conceptually prepared for the complexity of higher-order inquiries.

Another effective approach is to encourage collaborative discussion around higher-order questions. By first answering simpler, lower-order questions individually or in small groups, students build up the language skills and confidence needed for higher-order thinking. In group discussions around questions like

> *If heat is a kind of energy, and work is another kind of energy,*
> *what can we conclude about the nature of energy?*

students practice articulating their thoughts, negotiating meaning, and using subject-specific language in a meaningful way, which reinforces both content understanding and language skills. By effectively employing questioning techniques, teachers can create engaging and intellectually stimulating learning environments that foster both language proficiency and content mastery in CLIL and EMI classrooms.

7. Conclusion

Questioning techniques are a powerful tool in shaping student engagement and cognitive development. In content-based language learning (CBLL) contexts such as Content and Language Integrated Learning (CLIL) and English Medium Instruction (EMI), effective questioning can enhance both language acquisition and content understanding.

In CLIL and EMI contexts, the combined use of lower-order and higher-order questions is not merely a matter of structuring lessons but a pedagogical necessity for achieving both language acquisition and content mastery. Lower-order questions serve as stepping stones, helping students to become comfortable with foundational concepts and vocabulary, while higher-order questions promote deeper cognitive engagement and the practical use of language. By thoughtfully integrating these questions across both educational settings, teachers can create a dynamic learning environment that equips students with the skills and knowledge necessary to succeed in both their subject area and their use of English as a medium of instruction.

As previously illustrated, this integrated approach, utilizing both higher-order and lower-order questions, aligns with the cognitive hierarchy outlined in Bloom's Taxonomy. Lower-order questions lay the groundwork for understanding, retention, and comprehension, while higher-order

questions promote analysis, evaluation, and creativity. Together, they encourage comprehensive, deep learning that equips students with both foundational knowledge and critical thinking skills. By combining these question types, educators can create an inclusive, challenging, and dynamic learning environment that fosters cognitive development and prepares students for real-world challenges. This integration ultimately enriches the learning experience and cultivates students who are both knowledgeable and capable of thinking critically about complex issues.

This study aimed to provide evidence that an effective educational experience requires a balance of lower-order and higher-order questions. Each type fulfils unique cognitive roles, and using them in isolation can limit students' learning and cognitive development.

The most salient outcomes of this study point to the fact that before students can analyse or evaluate, they must first understand the basics. Lower-order questions establish this foundation, while higher-order questions help students develop advanced skills based on this foundational knowledge. Furthermore, lower-order questions provide the scaffolding needed to tackle complex problems. Without comprehension of basic concepts, students may struggle with complex tasks like analysis or synthesis, which higher-order questions require. It must also be said that students often have varied cognitive abilities and learning styles. Lower-order questions can be useful for students who need reinforcement of basic knowledge, while higher-order questions cater to those students who are ready for deeper exploration. Together, these question types support differentiated instruction. With a specific focus on content acquisition, lower-order questions enable students to master a wide range of content, while higher-order questions encourage them to explore particular topics in depth. This balance ensures students gain both breadth and depth in their understanding.

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Diangha Anthony Yuh[*]

Digitalization of the Post-pandemic Language Classroom in Cameroon and the Use of Technology in Teaching: Rethinking Local Policy on Classroom Praxis

Abstract

The digitalization of the language classroom in Cameroon has predominantly been confined to the utilization of the distance learning platform facilitated by the Ministry of Secondary Education. However, this research paper endeavours to transcend the limitations of this narrow perspective by presenting a comprehensive and expansive view of digitalization in the context of language teaching. By exploring the integration of Information and Communication Technology (ICT) tools and other technological innovations, this study critically examines the prevailing local policy in the West Region of Cameroon, which imposes restrictions on the use of technology in traditional language classrooms. In doing so, it advocates for a paradigm shift towards a more innovative and forward-thinking approach to language pedagogy that aligns with the expectations and demands of the 21st century. By broadening the understanding of digitalization in the language classroom, this research paper seeks to inspire educators, policymakers, and stakeholders to uphold transformative practices that harness the potential of technology to revolutionize language teaching and learning across all regions in Cameroon.

Keywords: Digitalization, language classroom, Cameroon, ICT tools, technological innovations, language pedagogy

1. Introduction

The digital transformation of education has become imperative in our rapidly changing global landscape, and the language classroom is no exception. In Cameroon, as in many countries, the COVID-19 pandemic accelerated the adoption of digital technologies in education through the development of distance learning platforms by the Ministry of Secondary Education (MINESEC). However, conceptualizations of digitalization in Cameroonian language pedagogy have often been narrowly constrained, primarily focusing on the implementation of these online platforms (Yuh 2023). This narrowed conceptualization is obviously not aligned with what the Cameroon minister of secondary education might have in mind as

[*] Diangha Anthony Yuh, Université de Dschang, yuhantoine@hotmail.com.

she advocates for the digitalization of the language classroom. The limited perspective on digitalization fails to acknowledge the fuller potential of integrating information and communication technologies (ICTs) and other technological innovations into language teaching methodology.

Scholarly discussions have increasingly recognized the need for a more comprehensive understanding of digitalization in language education. Scholars emphasize that digital transformation extends beyond mere virtual delivery of lessons to encompass utilizing digital technologies and ICTs within classroom instruction. Likewise, Yuh (2023) argues technological advancements have necessarily transformed language teaching practices, requiring innovative approaches aligned with 21st century skills. Similarly, Morley *et al.* (2018) advocate integrating ICT tools into language pedagogy to enhance learning outcomes. Within Cameroon's linguistically diverse secondary education system, comprising both anglophone and francophone streams, the language classroom faces multiple challenges. These include overcrowded classrooms, inadequate infrastructure, and criticism of curricula lacking emphasis on higher-order thinking and problem-solving (Gavach 2016). Furthermore, local policies in regions like the West Region restrict using ICTs such as laptops, phones and tablets in language instruction (Yuh 2023). While research from other contexts highlights benefits of technological integration (Kassie *et al.* 2002) Cameroon's policy at local level in some regions perpetuates a kind of methodological atavism inhibiting digital transformation.

This paper aims to examine current local directives concerning praxis in Cameroonian secondary language classrooms, particularly in the West Region. Drawing on constructivist and situated learning theories, I argue that the careful integration of technology and digital tools into traditional pedagogy should be non-optional in the 21st century. This aims to diversify learning experiences and promote communicative competency aligned with Cameroon's Competency Based language teaching model. The research seeks fuller conceptualizations of digitalization to strategically leverage technological affordances for both online and physical classroom contexts where possible in Cameroon.

2. The concept of digitalization in language teaching

2.1. Definition and scope of digitalization

Digitalization in the context of language pedagogy refers to the holistic integration of information and communication technologies (ICTs)

and evolving technological innovations into the language learning process. It encompasses more than mere utilization of online distance learning platforms or tools for virtual lesson delivery. Broadly conceived, digitalization involves strategically leveraging a diverse array of digital tools – including laptops, tablets, mobile phones, multimedia applications and interactive software – to cultivate an immersive, collaborative and engaging learning environment (Chun *et al.* 2016).

The scope of digitalization also extends beyond the physical bounds of the traditional classroom to encompass blended learning approaches that skilfully combine in-person instruction with online components to diversify learning modalities (Morley *et al.* 2018). Digitalization, thus, is not confined to virtual spaces but aims to optimize technology's potential to facilitate dynamic teacher-student interactions, provide enriched access to authentic target language resources, and foster situated communicative competence through collaborative digital projects. So, by systematically integrating advanced technologies, digitalization seeks to reimagine conventional language classrooms as vibrantly learner-centred environments attentive to 21st century skills development. It transforms pedagogical praxis from the solely theoretical transmission of knowledge toward interactive, project-based modes of experiential learning that actively prepare students for an increasingly digitalized global society (Reinders / Hubbard 2013). Comprehensively conceptualized, digitalization promotes innovative methodologies attentive to diverse learning styles while cultivating digital literacy and its social, cognitive benefits for language acquisition.

2.2. Integration of ICT tools in the language classroom

The strategic integration of information and communication technology (ICT) tools represents a core facet of meaningful digitalization efforts in language education. ICTs encompass a wide array of hardware, software and networked platforms – including computers, tablets, smartphones, digital projectors, interactive whiteboards, bespoke language learning applications, and online collaborative platforms. These diverse technologies provide rich opportunities to transform language teaching practices. ICT tools empower educators to design dynamic multimedia lessons facilitating interactive engagement and immediate formative feedback (Morley *et al.*

2018). They allow immersive language use through virtual exchanges, simulations and digital stories. Moreover, ICTs facilitate access to an abundant pool of authentic target language resources, such as online texts, audiovisual media and virtual language communities.

ICT integration also personalizes the learning experience. Tools like adaptive software, e-books and mobile applications support differentiated instruction aligned with diverse learning preferences and styles. They provide multimedia scaffolding and allow self-paced study. Furthermore, ICTs foster collaborative learning through online discussion forums, collaborative writing tools, and group projects employing multimedia. Such platforms promote higher-order communication and cooperation skills crucial for success in an interconnected world. In sum, purposefully leveraging ICTs as an integral component of reimagined language pedagogy can transform conventional classrooms into vibrant hubs of personalized, interactive and situated language development attentive to 21st century competencies.

2.3. The role of digital technologies in language pedagogy

While infrastructure barriers hampering widespread technology access persist across Cameroon's varied landscape, the potential of digital tools in reimaging pedagogy should not be discounted. Despite connectivity constraints, committed language educators continue striving to leverage low-cost solutions maximizing available affordances to enrich instruction. As the literature underscores, innovative technologies play a pivotal role in cultivating engaging, student-centred learning environments supportive of communicative competency development when judiciously applied (Morley *et al.* 2018).

Even within Cameroon's prevailing infrastructural constraints, the strategic integration of fundamental technological tools and platforms enables the promotion of immersive, experiential learning opportunities. Offline, mobile-based applications and resources facilitate the design of dynamic, multimedia-enriched, project-based activities that foster authentic language use and cultivate global cultural awareness and exchange in diverse formats. Additionally, through collaborative authoring interfaces and dialogical virtual forums, educators can leverage such technologies to nourish ongoing professional development, sharing strategically curated Open Educational Resources and instructional materials optimized for alignment with the

national language curriculum. Though institutional challenges persist, harnessing available technological affordances holds transformative potential for reimagining pedagogy and elevating language learning outcomes.

Digital tools moreover catalyse dynamic paradigm shifts supporting self-directed language acquisition beyond physical classrooms. Mobile applications and formative assessments can provide personalized feedback and differentiated scaffolding for independent skill development catering to diverse contexts nationwide. With sustained governmental commitment to infrastructure expansion and specialized training, Cameroonian classrooms can increasingly leverage technological innovations to reimagine traditionally taught competencies for global participation, using the Competency Based model being applied in language classrooms across the country. Though challenges persist, the potential of strategically applied technologies in nurturing engaged, student-centred pedagogy warrants continued experimentation and support, especially as this move aligns with the vision of the Minister of Secondary Education in Cameroon.

3. The current state of language teaching in Cameroon

3.1. Overview of Cameroon's education system and language instruction

Cameroon maintains a bilingual approach to education with English and French serving as the country's dual official languages prescribed by the Constitution (Gavach 2016), and contextually used as mediums of instruction across Cameroon. The national education system comprises two parallel sub-systems reflective of Cameroon's linguistic duality – the anglophone stream primarily utilized in the Northwest and Southwest regions, and the predominant francophone stream across the remaining provinces (Gavach 2016). Within each subsystem, a primary objective of language education centres on developing balanced proficiency in both English and French amongst students. In the anglophone system, English functions as the primary medium of instruction (MOI), while French is taught formally as a second language (FSL) through dedicated classes/subjects from Form one to Upper Sixths. Conversely, in francophone schools or Francophone sections of Bilingual secondary schools French assumes the role of MOI with English instruction allocated as the secondary EFL, conventionally labelled 'Anglais' as a subject or sub discipline within the secondary school system.

Cameroon's ambitious bilingual language education initiative has come under significant scrutiny in recent years. Critiques from education experts and stakeholders have highlighted a range of persistent issues that undermine the effective implementation of the country's bilingual policy. Chief amongst these concerns are the widespread inadequacies in teacher qualifications, with many instructors lacking the specialized training and language proficiency required to deliver high-quality bilingual instruction. Additionally, the lack of appropriate, research-based teaching methodologies tailored to the unique needs of bilingual learners has been cited as a major impediment. The shortage of well-designed, contextually relevant bilingual instructional materials further compounds the challenges faced by both teachers and students in the classroom context. Furthermore, the problem of overcrowded classrooms, where students struggle to receive the individualized attention necessary for developing balanced proficiency in both the English and French languages, has been a significant obstacle to the policy's aim of promoting true biliteracy. Perhaps most concerningly, assessments have revealed highly variable mastery of the target languages amongst graduates, with many exhibiting uneven levels of proficiency that fail to meet the standards envisioned by the bilingual education programme. Collectively, these challenges serve to undermine the overarching goal of the bilingual policy – to cultivate a foundation of English-French biliteracy that can support national cohesion and meaningful participation in regional integration efforts across Cameroon.

3.2. Challenges faced by the language classroom in Cameroon

The language classroom setting across Cameroon confronts an array of persistent obstacles that significantly impede the efficacy of teaching and learning processes. Firstly, the endemic issue of overcrowded classrooms (Fontem/Oyetade 2008) poses a major challenge, making it exceedingly difficult for educators to provide the necessary individualized attention and interactive language practice opportunities required for cultivating student competencies (Gavach 2016). These large class sizes inherently limit meaningful student-teacher interactions and markedly hinder the development of learners' communicative language skills and real-world application of target linguistic abilities.

Secondly, the dearth of adequate infrastructure and constrained access to essential educational resources pose challenges impeding effective language teaching and learning across the Cameroonian context (Gavach 2016). Numerous schools, particularly in underserved areas, lack access to fundamental facilities such as well-equipped language laboratories, libraries, and up-to-date language learning materials. This scarcity of vital resources substantially limits students' opportunities to engage in authentic, immersive language use and precludes their ability to readily access high-quality linguistic resources necessary for fostering communicative competencies aligned with pedagogical objectives.

Additionally, the prevailing curriculum framework implemented across Cameroon's education system has faced substantial criticism for its disproportionate emphasis on rote memorization and grammar-centric instruction, which ultimately neglects the crucial development of communicative competence and higher-order critical thinking skills amongst learners (Gavach 2016). However, the introduction of the Competency-Based language teaching model aims to address these shortcomings by promoting more interactive, student-centred pedagogies. The challenge lies in ensuring teachers consistently apply this innovative curricular approach, as the traditional teaching methodologies typical of language classrooms often prioritize decontextualised grammar drills and translation exercises, which may prove insufficient in cultivating students' capacity for meaningful communication and authentic language use within real-world scenarios.

3.3. Policy restrictions on the use of technology in traditional classrooms

Within certain regions of Cameroon such as the West Region, bureaucratic directives place constraints curtailing purposeful incorporation of educational technologies and ICT tools into conventional classroom contexts (Yuh 2023). Specifically, established guidelines proscribe utilizing laptops, tablets and mobile phones to supplement language instruction. Such restrictions ostensibly originate from concerns pertaining to potential distractions from academic objectives and prudent device usage, as well as deficiencies in pedagogical understanding of technologies' affordances. While the Ministry of Secondary Education has laudably introduced digital distance learning platforms amidst the COVID-19 pandemic, governing policy restrictive of

technology implementation within traditional classrooms remains largely unchanged (Yuh 2023).

These longstanding constraints imposed by restrictive policy directives inhibit the full realization of the well-documented academic, social-emotional, and 21st century skill benefits that the strategic integration of technological tools and platforms can confer upon language acquisition processes when methodologically implemented. In light of such entrenched challenges perpetuating the inhibition of systemic digital transformation and the evolving societal demands for technologically adept graduates, the urgent need to re-envision these dated policy directives has become increasingly apparent. Thoughtfully harnessing the transformative potential of diverse technologies, including mobile phones, tablets, and laptops, can align curricula with international best practices promoting engaged, interactive learning and better prepare learners for navigating an increasingly technology-mediated world.

4. The potential of ICTs in the language classroom

4.1. Review of scholarly literature on the use of ICTs in education

The strategic use of Information and Communication Technologies (ICTs) as pedagogical tools in educational contexts, including second/foreign language teaching and learning, has garnered substantial attention within academic research. A wealth of empirical studies and review articles have explored the affordances, implementation challenges, and learning outcomes associated with purposefully integrating technologies across diverse instructional settings.

In their seminal review, Kozma and Anderson (2002) synthesized a sizeable body of evidence highlighting ICTs' positive influence on cultivating student engagement, intrinsic motivation, and achievement through interactive, collaborative learning experiences. Similarly, analyzing contextual factors shaping technology adoption, Warschauer (2004) underscored how deploying ICTs judiciously could help bridge prevailing digital access divides and facilitate equitable provision of rich educational resources, particularly within underserved communities. But beyond these foundational contributions, extensive research has also investigated various technology tools and platforms. For example, multiple meta-analyses corroborate that one-to-one computing initiatives boost academic

performance across disciplines when leveraged to enhance authentic, project-based learning (Zheng *et al.* 2016; Varier *et al.* 2017). Blended and online learning environments were found to promote cognitive presence and higher-order critical thinking when designed according to connected pedagogical principles (Akyol/Garrison 2011; Borup *et al.* 2014). At the same time, numerous qualitative explorations have uncovered attitudinal, sociocultural and implementation factors shaping technology use (Ifenthaler/Schweinbenz 2013). Institutional support structures, professional development quality, and pedagogical expertise dimensions have emerged as key determinants of successful, sustained integration efforts.

4.2. Mobile Assisted Language Learning (MALL) and its impact on language skills

Mobile Assisted Language Learning (MALL), defined as the strategic leveraging of portable digital devices like smartphones and tablets to supplement and enrich language instruction, has emerged as a particularly compelling subset of ICT integration given the widespread proliferation and adoption of mobile technologies across diverse contexts (Burston 2014; Kukulska-Hulme/Shield 2008). Numerous empirical studies have documented MALL's promising affordances for enabling ubiquitous, contextualized language practice aligned with social-constructivist pedagogical models, offering significant potential to enhance language acquisition outcomes (Keskin/Metcalf 2011).

Empirical investigations across diverse contexts have furnished compelling evidence of MALL's ability to positively impact the development of varied language proficiencies. For instance, Thornton and Houser's (2005) study incorporating mobile vocabulary applications with undergraduate Spanish learners observed sizeable gains in lexical retention and recall compared to traditional approaches. Similarly, experiments integrating multimedia-enriched resources accessed via mobile phones to enhance English listening skills found significantly improved comprehension outcomes amongst test groups relative to control cohorts (Stockwell 2007; Wu *et al.* 2012). Such findings highlight MALL's transformative potential for language teaching and learning. Additional research highlights MALL's capacity to advance oral communication abilities. Several studies reported benefits such as increased willingness to communicate verbally through recorded speaking exercises accessible on phones (Lu 2008). Mobile language exchange

applications connecting learners internationally also showed efficacy for fostering speaking fluency via authentic informal conversations (Jauregi *et al.* 2011; Thornton / Houser 2005). Surveys further indicate learners perceive MALL as lending a stronger sense of autonomy and control over personalized learning experiences

In summary, the thoughtful integration of well-designed mobile technologies affords compelling opportunities to make language study more situative, engaging, and effective at developing overall proficiency amongst learners when leveraged strategically for supplemental practice and reinforcement (Huang *et al.* 2010; Kukulska-Hulme/Shield, 2008; Zurita/Nussbaum 2004).

4.3. Benefits of technology integration for teachers and learners

The strategic integration of instructional technologies in language education provides multifaceted advantages for both instructors and students when leveraged judiciously. To begin, digital tools empower educators to design immersive, participatory lessons through interactive multimedia platforms. For instance, technologies like interactive whiteboards and educational software enable incorporation of enriched audiovisual elements, collaborative activities, and formative assessments to heighten engagement (Levy 2009; Morley *et al.* 2018).

Furthermore, advanced technologies facilitate the implementation of differentiated pedagogical approaches, tailored to accommodate the diverse learning profiles prevalent in modern classrooms. Through the strategic utilization of digital platforms, educators can personalize content delivery and provide scaffolding via customized assignments, thereby offering targeted support while simultaneously presenting appropriately challenging tasks (Pegrum 2014). This nuanced diversification of instructional methods not only caters to individual learning needs but also fosters learner autonomy through student-paced, self-directed practice. Such an approach aligns seamlessly with constructivist theories of education, emphasizing active engagement and knowledge construction (Bax 2003).

Also, technologies afford equitable access to authentic language resources through online repositories and collaborative platforms (Hubbard 2013). Language learners can gain exposure to diverse linguistic and cultural contexts via interactive multimedia exercises, gamified activities and communicative

exchanges with international peers (Chapelle/Jamieson 2008). These contextualized experiences optimize skill development (Kessler/Hubbard 2017). Digital tools have been found to promote collaboration through student-centred, cooperative learning modalities. Project-based assignments conducted via virtual classrooms, discussion forums and collaborative authoring tools develop higher-order communication competencies essential for global competency.

In Cameroonian classrooms navigating infrastructure constraints, project-based learning cultivated via basic technologies remains impactful for developing higher-order communication. With sustained commitment to specialized training and expanding connectivity, classrooms can increasingly leverage strategic technology integration shown to promote engaging, personalized pedagogies supporting proficiency-based outcomes. Though challenges remain, committed educators continue striving to maximize available affordances enriching adaptive, student-centred instruction.

5. Rethinking local policy on classroom praxis

5.1. Critique of the methodological atavism in some Cameroon's language classrooms

A discerning analysis of the prevailing pedagogical climate characterizing Cameroon's language classrooms reveals deeply entrenched patterns of methodological atavism that contradict evidence-based advances, and even goes against the aspirations of the present minister of Secondary Education. The stubborn clinging to obsolete practices rooted in bygone eras presents an impediment to progress, innovation and positive reform. Specifically, the perpetuation of teacher-centred, rote instructional styles privileging grammatical rules and mechanical exercises over meaningful communicative experiences fails to optimize student-centred constructs that should emphasize experiential learning through social interaction (Gavach 2016). Such rigid, archaic methodologies stifle creative and critical thinking through an overdependence on mindless recitation and drills disconnected from authentic language usage contexts. Though this pedagogical praxis may operate in contradistinction to the intentions of the hierarchy, insistence on traditional methods of lesson delivery can be misconstrued as a call to shun the integration of technology into language pedagogy.

Moreover, limited attention allocated to developing higher-order competencies like cooperation, negotiation of meaning, and literacy

proficiencies through collaborative project-based learning impedes learners' aptitudes for navigating today's globally connected societies (Katz 2020; Yuh 2023). Without targeted reforms, this entrenched methodological atavism will continue obstructing the holistic development of communicative and intercultural competencies sought through Cameroon's bilingual vision statement. To forbid the use of technological tools, thus, is to forbid access to a wide array of resources, some of which could be instantly sought to address situations that might arise in the language classroom.

In summary, urgent redress is needed to modernize the pedagogical landscape in Cameroon through systematic professional development on constructivist, sociocultural approaches, particularly in the west region. This will go a long way to harness strategic integration of technological affordances for engaging, interactive language learning conducive to 21st century demands (Blattner/Fiori 2009; Gavach 2016).

5.2. The need for innovative approaches to language pedagogy

Considering the pressing need to modernize practices underscored in the preceding critique, an imperative emerges to embrace transformative change redirecting the course of language education. To optimize student outcomes amidst globalization, pedagogical landscapes must transition beyond convention, instead pioneering innovative methods situated at the vanguard of evidence-based practice. The exigency lies in cultivating pedagogies that ignite passion for perpetual learning through engagement in authentic, experiential activities. Strategically harnessing novel constructs like experiential education, social constructivism and multidimensional assessments can re-envision pedagogy and optimize the development of higher-order capacities for communication, collaboration, problem-solving and intercultural competence.

Moreover, the judicious incorporation of emerging technologies at the forefront of educational innovation – such as blended learning models, mobile-integrated ePortfolios, and virtual collaborative communities – can serve as a catalyst for this paradigmatic shift in pedagogical practice. When thoughtfully integrated within sociocultural frameworks, these innovative technological tools have the potential to nurture highly interactive, student-centred learning environments. Such environments are particularly conducive to cultivating essential 21st-century skills, including intellectual curiosity,

creative problem-solving, and critical reflexivity. This synergistic fusion of cutting-edge technology and established educational theories not only enhances engagement but also promotes deeper, more meaningful learning experiences that prepare students for the rapidly evolving global landscape.

In a nutshell, embracing pioneering pedagogical reform through theory-driven technology integration presents a timely opportunity to transform obsolete models and forge new instructional paths that maximize learners' potential to thrive in a globally connected future through proficient linguistic media. Thus, if language pedagogy in Cameroon (particularly in the West Region) is to instil 21st century skills into the learners, it goes without saying that the integration of technology into language teaching becomes nonoptional.

5.3. Supporting arguments based on learning theories and models

The call to rethink local policy on classroom praxis within the Cameroonian context, particularly in the West Region, finds resolute support within esteemed sociocultural learning theories. Constructivism, as espoused by Vygotsky and Piaget, underscores the vital role of engaged social learning and authentic experiences in knowledge construction (Kalina/Powell 2009; Ültanir 2012). By embracing collaborative, technology-supported pedagogies, educators can cultivate vibrant communities where meaningful interactions flourish and critical thinking blossoms (Falloon 2020).

Moreover, cognitive load theory posits that effective instruction optimizes cognitive resources by presenting multi-modal, personalized materials calibrated to learner capacities (Sweller 2011). By leveraging technology to deliver scaffolded, experiential learning tailored for diverse styles, educators can facilitate optimal language acquisition (Clark/Mayer 2016; Moreno/Mayer 2007). In tandem, the Community of Inquiry framework outlines social, cognitive and teaching presences essential for productive online exchanges (Akyol/Garrison 2011). Purposefully integrating virtual exchanges cultivates engaged communities supporting quality interaction, knowledge-building and shared understanding, but to arrive there, familiarity with basic use of technology in the language classroom must be encouraged in Cameroon.

Additionally, transformative learning theory advocates for perspective-shifting experiences promoting self-reflection and autonomy (Mezirow 1997). In the Cameroonian context, where differences exist across diverse

linguistic, ethnic, and regional communities, transformative learning theory provides an impactful framework. Collaborative projects conducted through technology-mediated instruction that connects learners across these divides can nurture willingness to negotiate varied viewpoints and gain sociocultural competence. Such experiences exploring perspectives outside one's immediate community are particularly beneficial in Cameroon, helping to foster cultural awareness, empathy, and national unity. By facilitating transformative learning among language students through virtual exchange projects, educators can help prepare learners for an increasingly interconnected yet diverse world.

In summation, modern theories collectively confirm innovative, sociocultural pedagogies as optimally supportive of language learning aims. By drawing on such proven frameworks to inform strategic policy modernization, Cameroon can transform obsolete models into vibrant, inclusive learning communities responsive to 21st century demands. Educational policymakers in the West Region could align with the minister's aspirations by promoting classroom praxes that purposefully integrate digital technologies into language pedagogy.

6. Recommendations for digitalization in the language classroom

6.1. Strategies for incorporating ICT tools and technological innovations

To realize the vast potential of digital transformation in language education, strategic and thoughtful integration of emerging technologies is paramount. Educators must first conduct comprehensive needs analyses to discern clear instructional objectives and intended learning outcomes. Only then can appropriate tools and platforms be selected in alignment with pedagogical goals. A diverse toolkit may include interactive virtual learning environments, open educational linguistic resources from around the globe, collaborative digital authoring spaces conducive to project-based learning, and adaptive artificial intelligence assistants tailored for personalized competency development.

Rather than relying solely on traditional in-person modalities, innovative blended, hybrid, and situated learning models combining strategic classroom face-to-face interactions with extended online and mobile components can enhance authentic language acquisition. Learning management systems allow efficient distribution of interactive multimedia

lessons that transcend temporal and spatial barriers. Videoconferencing nurtures synchronous global exchanges for intercultural understanding. Asynchronous discussion forums cultivate continued reflection and higher-order thinking beyond bell schedules.

To ignite intrinsic motivation amongst diverse learners, educators should infuse language pedagogy with motivational affordances like adaptive gamification elements, interactive quizzes and situated collaborative problem-solving scenarios. Immersive virtual worlds provide autonomy to experience authentic language and cultural scenarios. Digital rewards systems promote a growth mindset. Situated tasks necessitate negotiation of meaning and cooperation across linguistic and cultural divides.

Formative assessment of effectiveness and iterative refinements guided by emergent needs are indispensable for sustained impact. Technology-mediated tools like evidence-based digital portfolios and competency e-maps empower self-monitoring and benchmarked progression. Continued professional development according to periodic evaluation ensures strategic synchronization between technological affordances and evolving pedagogical objectives. Through research-driven selection and purposeful integration of fit-for-purpose technologies, transformative hybrid instructional models can realize the ambitious vision of optimizing 21st century language proficiency for all learners.

6.2. Overcoming challenges and barriers to implementation

Effectively addressing predicted challenges surrounding the digital transformation of language pedagogy demands prudent mitigation strategies formulated through a lens of research-informed change management. As the literature consistently denotes, equitable access to suitable technological infrastructure presents the foremost hurdle inhibiting widespread adoption. Proactive advocacy is therefore required from educational stakeholders to rally necessary funding support towards expansive network development initiatives and provision of internet-enabled learning devices targeted within underserved rural regions where connectivity gaps persist. Long-term partnerships forged between policymakers, community organizations, and equipped with strategic planning outlooks considering contextual nuances can help oversee sustainable infrastructure projects to gradually bridge digital access divides.

In tandem, specialized professional learning models must be devised to purposefully build educator capacities aligned with evolving digital pedagogical praxis. Curated in-service programmes, mentorship pairings with early adopters, and online collaboratives can collectively nurture ongoing development of technology-mediated instructional design competencies alongside growth mindsets receptive to paradigm recalibrations. Targeted capabilities encompass not only fundamental computer literacy but also competence operating available educational tools and confidence facilitating emergent blended and mobile learning modalities. Supportive communities of sharing best practices further foster reflexivity and collaborative iterations informed by systematic evaluation feedback.

Perhaps most critically, transformational shifts towards student-centred, active construction of knowledge demand judicious change management through instructive coaching, leadership modelling, and customized demonstration of transformed praxis. Optimal synchronized progression requires navigating pedagogical transitions skilfully via ongoing mentorship while also cultivating broader institutional buy-in through prudent strategic planning attuned to contextual realities. Perpetual progress monitoring then serves to ensure sustainability and refinement according to emergent needs. With infrastructure demands prioritized and systematic capacity building coalesced under a phased change management vision, the aforementioned roadblocks threatening digital transformation in language education can be navigated purposefully through collaborative mitigation over time.

6.3. Implications for teacher training and professional development

Ensuring the long-term sustainability of purposeful digital transformation initiatives within Cameroon's language education landscape necessitates strategic prioritization of customized educator capacity building ventures. Despite recent curriculum updates embracing technology integration, persistent challenges like inadequate infrastructure and limited practitioner competencies still impede widespread adoption.

From the outset, pre-service teacher training programmes at higher teacher training colleges across Cameroon should emphasize the development of foundational digital literacies and technological competencies that are particularly suited to the country's unique contextual

constraints, as hinted on by Muñoz-Cristóbal *et al.* (2015) in the context of Spain, and Kessler *et al.* (2012) in the context of the United States. Given the prevailing infrastructure challenges, a crucial emphasis is needed on equipping prospective educators with proficiency in leveraging low-cost, offline-operable mobile technologies that are ubiquitous nationwide. This targeted approach aims to imbue new teachers with heightened awareness of affordable technological affordances and confidence in experimenting with place-based, context-sensitive pedagogical methodologies.

However, competence must also be regarded as an ongoing process rather than singular event. Cameroonian educators accordingly require proactive support engaging in lifelong professional growth navigating technological advances. Opportunities including regional seminars, participation in local professional networks, and online courses tailored to the national curriculum strengthen pedagogical expertise within means. Communities of practice formed through collaborative reflection additionally nourish contextual understanding of implementation realities throughout diverse linguistically and economically varied settings nationwide (Borup/ Evmenova 2019). With long-term governmental commitment to capacity building standardized yet customized for local needs, language educators can drive inclusive, sustainable transformation from grassroots. Most critically, learners across Cameroon will graduate equipped with demand-driven competencies.

7. Conclusion

Throughout this discussion, several key findings and arguments have emerged regarding digitalization in the language classroom. Strategies for incorporating ICT tools and technological innovations have been highlighted, including the thoughtful selection of tools, the implementation of blended learning models, and the use of gamification and interactive approaches. Overcoming challenges and barriers to implementation has been identified as crucial, such as ensuring access and infrastructure, enhancing technological competence amongst educators, and embracing pedagogical shifts. Additionally, the implications for teacher training and professional development have been underscored, emphasizing the need for digital literacy, ongoing professional development, and mentorship and support systems. Thus, the importance of embracing digitalization in the

language classroom cannot be overstated. Digital tools and technological innovations offer numerous advantages for language learning, including increased engagement, personalized learning experiences, access to authentic resources, and opportunities for collaboration and communication. By integrating ICT tools strategically, educators can create dynamic and immersive learning environments that foster language acquisition, fluency, and cultural competence. Embracing digitalization also aligns with the demands of the digital age, equipping learners with the necessary skills to thrive in an interconnected world. As digitalization continues to evolve, there are several promising directions for future research and practice in the language classroom.

First, further research is needed to explore the effectiveness of specific ICT tools and technological innovations in different language learning contexts. Comparative studies can shed light on the most effective strategies for incorporating digital resources and their impact on language proficiency outcomes. Also, research, especially in the Cameroonian context, can examine the optimal blend of online and in-person instruction in blended learning models, as well as the role of gamification and interactive approaches in enhancing motivation and engagement amongst learners. Also, research could address the evolving needs of language educators in terms of digital literacy and pedagogical training. It is essential to continue investigating effective approaches for providing ongoing professional development that equips educators with the necessary skills and knowledge to successfully integrate digital tools into their teaching practices. Additionally, exploring the impact of mentorship and support systems on educators' adoption of digitalization can provide valuable insights into effective strategies for facilitating technology integration.

In a nutshell, embracing digitalization in the language classroom offers exciting possibilities for transforming language learning experiences. Through strategic integration of ICT tools, addressing implementation challenges, and prioritizing teacher training and professional development, educators can create dynamic and engaging learning environments that empower students to thrive in the digital age. Continued research and exploration of best practices will further enhance the effective use of digital resources and contribute to the evolution of language education.

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Notes on contributors

Lucia Abbamonte works as Associate Professor of English Language and Translation at the University of Naples Parthenope and was awarded habilitation to full professorship in 2018. Major foci in her research activities have been on the socio-cognitive and pragmatic aspects of situated linguistic communication, (multimodal) Critical Discourse Analysis, ecolinguistics, ESP for (Neuro) Psychology and Cognitive Sciences. She has authored five books and numerous articles. She is reviewer for international journals, and a member of the I-Land and of the CLAVIER. Her 2018 volume 'Black Lives Matter'*: Cross-Media Resonance and the Iconic Turn of Language* has investigated the multimodal variation and iconic turn of news media and social media communication.

Anna Anselmo
Anna Anselmo is Associate Professor of English at the University of Milan. She received her PhD in 2011 at the Catholic University of Milan. She has taught English for Specific Purposes at the University of Milan, the University of Brescia, and the University of Vallée d'Aoste. Her research interests include terminology theory, historical lexicography, critical discourse analysis (social actor theory), and British Romantic periodicals. She has published on fashion terminology in the Romantic period (2014), on the representation of social actors and social action involved in the Peterloo Massacre (2021, 2022), on conspiracy theory and COVID-19 in the UK (2022), and on medical terminology in the long eighteenth century (2023). Her book, *The Poetics of Uncontrollability in Keats's Endymion* (Cambridge Scholars Publishing, 2016), offers an overview of eighteenth-century language philosophy and its repercussions on Romantic writing from a morphological perspective. She is currently working on a new book, titled *Politics, Discourse, and the Press in the Early Nineteenth Century* (Cambridge Elements, Cambridge University Press, 2025).

Giuseppe Balirano, PhD in English Linguistics, is Professor of English Linguistics and Translation at the University of Naples L'Orientale, where he is also the current Director of the University Language Centre (CLAOR) and Rector's Delegate for Lifelong Learning, E-learning and

Multimedia Enhancement. He is the President of the Italian Association for the Study of English (AIA). He is the BeTwiXt series director. His research interests and publications lie in the fields of multimodal critical discourse studies, humour, masculinity and queer studies, the discursive representation of organised crime and audio-visual translation. His most recent publications include: *The Rainbow Conspiracy: A Corpus-Based Social Media Analysis of Anti-LGBTIQ+ Rhetoric in Digital Landscapes* (2024, with B. Hughes); *Re-Defining Gender, Sexuality, and Discourse in the Global Rise of Right-Wing Extremism* (2021, co-edited with R. Borba); *Homing in on Hate: Critical Discourse Studies of Hate Speech, Discrimination and Inequality in the Digital Age* (2020, co-edited with B. Hughes).

Francesca D'Adamo holds a PhD in Education and Society from the University of Barcelona (Spain) with a dissertation on the use of vernacular video games to enhance English learning in an extramural educational context. She teaches English in secondary schools in Rome and her research interests focus on the gaming world, from serious to vernacular games, exploring the potential of game mechanics, dynamics, and elements in educational contexts.

Francesca D'Angelo is research fellow in English Language, Translation and Linguistics (ANGL-01/C) at the Alma Mater Studiorum University of Bologna and adjunct lecturer at the University of Naples "L'Orientale". She conducted her Ph.D. study on Third Language Acquisition between the University of Salerno and the University of Edinburgh. She is specialised in bilingualism, translanguaging, ESPs, museum communication, cognitive translation, and gender studies from a sociolinguistic perspective. She has been a consultant with expertise in gender-fair linguistic strategies and women's rights in academia at the University of Salerno. Among her most recent works: *Teaching and Learning Third Languages* (2023); *Assessing Translation Quality: a Survey of Research into Human Translation, Post-editing and Machine Translation* (2023); *Integrating Multilingual Practices in Content and Language(s) Integrating Learning* (2024).

Stefania D'Avanzo is Associate Professor of English Language, Translation and Linguistics at University of Campania 'L. Vanvitelli'- Department of

Economics. Her main research interests and publications focus on Corporate, Legal, Medical, Environmental, Institutional and Popularization Discourse. Methodology and theoretical approaches include, among others, Multimodality, Corpus Based Approach, Critical Discourse Analysis, Cognitive Linguistics. She is a member of CIRLaM - Centre for Interdisciplinary Research in Language and Medicine. She has recently published a paper on medical communication (*D'Avanzo, S. 2024. Misinformation through Social Media: The TikTok 'Debate' on the COVID-19 Pandemic and the Institutional Reaction*. In Tessuto, J., Caraglia, M. (eds.). Framing Ethics and Plagiarism in Medical Research Writing and Publishing. Cambridge Scholars Publishing) and a paper on well-being in academia *(D'Avanzo, S. 2024. Promoting students' mental health in academia: an investigation of counselling services sections on British and American university websites*. Mediazioni (42): 29-43).

Maria De Santo is PhD student in English Language, Translation and Linguistics (ANGL-01/C) at the University of Naples L'Orientale, where she is also Language Counsellor and Education Coordinator of the University Language Centre (CLAOR). She has extensively published on learner autonomy and technology-enhanced language learning in English, ESP and CLIL. Her current research interests focus on the integration of corpus-based research with ELT and online testing, gender identity and mental health in online medical communication, and the representation of disability in cinema.

Bronwen Hughes is an Associate Professor of English Language and Linguistics at the Università degli Studi di Napoli, Parthenope. She has taught extensively in the fields of English for Tourism, English for Law, Translation Studies and English for Professional Purposes at both undergraduate and postgraduate level. She holds a PhD in Linguistics and Modern and Comparative Literature, and her research interests lie in the fields of translation as a tool for second language acquisition, cross-cultural media studies, gender diversity and disability studies. In terms of methodological frameworks, she commonly employs the tools offered by CDA, Conversation Analysis, Multimodal Discourse Analysis and Corpus Linguistics. She has published several monographic works and numerous research articles which appear in collected volumes.

Margaret Rasulo holds a PhD in English Linguistics and an MA in Education. She is an Associate Professor of English Language and Translation (L-LIN/12) at the University of Campania Luigi Vanvitelli. Her teaching portfolio includes a wide range of courses in English for the Humanities, particularly in Art History and Cultural Heritage. Her research primarily focuses on the discourses surrounding terrorism, politics, social media, conflict and aggression, and conspiracy theories. Employing a robust methodological foundation, her work is inspired by CDA-based investigation, including Critical Multimodal Discourse Analysis, Historical Discourse Analysis, and Corpus Linguistics. Dr. Rasulo has an extensive publication record, including numerous monographs in these areas of study.

Elena Refraschini
Elena Refraschini is a journalist, a business owner and a teacher of English as a second and foreign language. She holds a Master's Degree in Publishing from the University of Milan (2011) and a Postgraduate Degree on Publishing from the celebrated Mondadori Foundation (Milan). Refraschini has developed a teaching career alongside a career as an author, publishing two books - In Viaggio sul Sofà - on couchsurfing, in 2014; San Francisco: Ritratto di una Città in 2017. In 2018 she founded her online English School, which focuses on American Language and Culture and on creating original courses, for example Big Bowl of Serial, on using TV Series for autonomous language learning, and the more recent Fantaystic, on using music and lyrics to gain insight into American culture.

Diangha Anthony Yuh is a full-time teacher and a PhD student researching language teaching in Cameroon. Yuh holds a Master of Arts degree in English and Commonwealth Studies, a DIPES II (Advanced Teacher's Certificate), and a Maitrise in English. His academic interests span English language, language teaching, and literature. Yuh has published articles in journals and presented at conferences on topics ranging from discourse analysis to the digitalization of language classrooms. He is the current President of the Cameroon English Language and Literature Teachers' Association (CAMELTA-West) and a skilled presenter on English phonology and pedagogy. Fluent in English and French, Yuh is also proficient in various ICT applications.