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Languages and technologies in education at school and outside of school: Perspectives from young people in low-resource countries in Africa and Asia

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Disadvantaged young people in low-resource countries are less likely to complete their education or to progress to higher levels, which means that their upward mobility can be severely constrained. Versatile technologies such as smartphones, when combined with an ability to use the English language, can facilitate access to learning resources, thereby helping to support young people's education where the school facilities and local teaching resources are often insufficient and may reinforce existing inequalities. However, technology access and usage vary, and linguistic or other barriers to effective engagement are multifaceted. To gain a deeper understanding of the role of languages and technologies, our research project collected first-hand accounts of the educational experiences of marginalized young people aged 13–15, their parents and teachers in harder-to-reach urban and rural settings, in four low-income countries in Africa and Asia. The research investigated perspectives on the English language and use of technology in education in school and outside of school. Our findings provide original insights into local cultures of technology use and English language use in the context of young people's lived experiences. The paper covers young people's use of English and attitudes toward English alongside other languages in their local settings, and how they are learning with mobile digital devices at school, at home, outdoors, and in the homes of relatives, friends and neighbors. Relationships between languages and technologies are discussed, as well as the sustainability of English- and technology-mediated education in the countries in question, which will have broader applicability in other low-resource settings.

KEYWORDS

marginalization, low- and lower-middle-income countries, low-resource areas, education, mobile device adoption, English–second language, school–aged children

1. Introduction

The United Nations' Sustainable Development Agenda identifies quality education as foundational in that it “enables upward socioeconomic mobility and is a key to escaping poverty” (UN, 2022). Yet a quality education is in some measure dependent on the resources of individuals, their families and communities, as well as the education systems that countries are able to provide. It is known that more disadvantaged children in low-resource countries are less likely to complete their education or to progress to higher levels (Power, 2019; Ilie et al., 2021), which means that their upward mobility can be severely constrained. A focus on use of personal resources, in the form of widely owned devices such as mobile phones, and on development of

certain skills, such as the ability to use the English language, may be ways to overcome some of the barriers faced by many disadvantaged children and young people in their educational progress (Unterfrauner and Marschalek, 2009; Guo et al., 2020). Versatile technologies such as smartphones, when combined with an ability to use the English language, may facilitate access to additional learning resources, thereby helping to support young people's education in low-resource settings where the school facilities and local teaching resources are often insufficient to meet their needs and may reinforce existing inequalities (UNESCO, 2016).

However, technology access and usage vary, and barriers to effective engagement are multifaceted. Often, those already marginalized in society are the most likely to be further excluded and disadvantaged when ICT is added to educational provision (Loh and Chib, 2022). Similarly, although the English language can provide access to global resources, it can also marginalize speakers of indigenous languages (Liddicoat and Heugh, 2014). A deeper understanding of the role of languages and technologies in education may be gained by collecting and analyzing the first-hand experiences of marginalized young people in disadvantaged communities in low-resource countries, especially in communities that are geographically remote or based in urban areas that researchers have been unable to, or not wanted to visit as part of their investigations. Our paper draws on our research in the ReMaLIC project (2020–22)—*Reaching out to Marginalized Populations in Under-resourced Countries*, which collected first-hand accounts of the educational experiences of marginalized young people aged 13–15, their parents and teachers in harder-to-reach urban and rural settings, in four low-income countries in Africa and Asia. The project investigated participants' perspectives on the English language and use of technology in education, in school and outside of school. The research findings provide original insights into local cultures of technology use and English language use in the context of children's lived experiences. We also reflect on the sustainability of English- and technology-mediated education in the countries in question, which will have broader applicability in other low-resource settings.

2. Literature review

One of the premises of the ReMaLIC project was that it was necessary to look into the experiences of learners, parents and teachers when accessing and/or using English in the context of its increasing dominance globally. The global dominance of English means that major cities and urban areas around the world are increasingly becoming bilingual (Schleicher, 2014; Phyak, 2016), with English even replacing national languages. A number of studies reviewed for the project demonstrate that the speakers of dominant languages, such as the national language(s) and/or English, receive more attention and better services than the speakers of indigenous languages (de Varenne, 2012; Mohanty, 2019). Indigenous language speakers are therefore negatively impacted by the increased value placed on the dominant languages and prevented from becoming functional citizens of their countries. When digital technologies are combined with a dominant language like English, they add to the risk of people being disadvantaged (Mohanty, 2010, 2019; Phyak, 2016; Giri, 2019; Altavilla, 2020). These perspectives stand in contrast to more optimistic narratives around advantages of learning

and knowing English and having access to digital technologies in education (e.g., Erbas et al., 2021).

This section provides a synopsis of some of the available literature examining social and educational forms of language- and technology-based disadvantages faced by children and young people in low-income countries (LICs). The literature review was undertaken in the context of the ReMaLIC project led by The Open University and funded by the British Council, UK. The project collected reports and accounts of lived experiences from students, teachers and parents; analyzed education practices mediated by technology, English and local languages; and has been drawing out policy gaps, inconsistencies in practices, and pedagogical as well as research implications for the use of technology, English and local languages. A semi-systematic literature review approach was employed (Snyder, 2019). This approach enables an overview of broad topics that have been conceptualized in various ways and studied by distinct groups of researchers in diverse research contexts, and that could not be achieved through a more restrictive systematic review process (Wong et al., 2013; Snyder, 2019). It is useful for identifying themes and common issues. As a host approach, it allows the collation and analysis of different constituent review methods. An important aim of the literature review was to develop a clear understanding of key concepts and terminology within the literature on marginalization, formulate our own working definition, and identify the agencies and organizations who are involved in researching, combating and managing marginalization.

2.1. The conceptualization of inequality and marginalization in education

Several authors have pointed out the need to conceptualize inequality and marginalization in the contexts in which they are experienced as they are complex concepts and they are perceived, experienced and constructed differently in diverse contexts (Messiou, 2012; Liddicoat and Heugh, 2014; Spaul and Taylor, 2015; Loh and Chib, 2022). For example, inequalities within low-resource setting communities are perceived in terms of individuals lacking desirable traits that result in the exclusion of such individuals from existing systems, thereby limiting their means of accessing learning resources and life opportunities (UN, 2016). Similarly, for Marshall (1997), exclusion or marginalization is a process by which a group or individual is denied access to deserving positions and socio-economic, lingual-cultural or educational opportunities (p. 104). In this sense, to be marginalized is to be limited in scope and space, which also involves exclusion, discrimination, rejection, omission and isolation. In order to explore how marginalization is experienced and constructed by the peripheral communities, Messiou (2013), based on her extensive observations as a teacher, academic and researcher, examines the issue of exclusion in education from the perspectives of parents, teachers and students. She argues that "marginalization is self-constructed" or constructed within a group. By providing several stories from parents, teachers and above all students, she illustrates how marginalization is constructed and exercised at group and community levels in all countries, including Britain and Cyprus, which were her focus countries, and how it is constructed by "self" (Messiou, 2012, p. 3). An example of such a

construction of marginalization by “self” is illustrated in the incident she reports below:

“A primary-age boy, white skinned, gets on the bus with his dad. They sit at the back of the bus. A boy of what appears to be African heritage gets on at the next stop, with his mother. He immediately sees the other boy and happily calls his name, ‘Eddie’ (not his real name), and runs toward him. The mother calls him to come to the front and sit with her. The boy does not listen to her and stays with his friend and the dad. The mum looks very worried and keeps looking toward the back. When they get off the bus she grasps his hand and starts whispering something in his ear.”

The finding of self-constructed marginalization is significant for the ReMaLIC project in the sense that one of the areas we proposed to examine was how the target population see themselves and what roles their languages and socio-economic perspectives play in their educational exclusion. The concept of educational exclusion has been explained in terms of “access to learning” (Spaul and Taylor, 2015) in the related literature. Access to learning refers to the educational policies and procedures through which schools should ensure that students of all backgrounds have equal and equitable opportunities to learn. As there are several (often intersecting) educational, socio-cultural and personal factors involved, access to learning is measured through societal and institutional policies and systems put in place to ensure students’ equal access and successful completion of learning. For the ReMaLIC project, two such contributing factors, namely languages and technologies, were employed to explore how they might marginalize or disadvantage students. The literature suggests that documented or undocumented languages that have no status or are not a part of formal education, are variously denigrated as languages of the backward, the uncivilized, and the uneducated, while national languages, along with English, have become the languages of the economy, power and politics (Liddicoat and Heugh, 2014). Consequently, those who are already marginalized in society are the most likely to be further excluded and disadvantaged when ICT is added to educational provision (Loh and Chib, 2022). Our project explored if, and to what extent, the access to devices and internet/ telecoms created barriers that could exclude children from full digital participation.

2.2. Languages

As indicated above, language-based marginalization has been one of the areas of research of the ReMaLIC project. Excluding or disadvantaging people on the basis of language manifests itself in various forms which may include stereotyped perceptions of minority language speakers, imposition of dominant linguistic and cultural norms and hegemonic domination of socio-politically weak language groups. Furthermore, when a language is not recognized for a certain function or not accorded space in the linguistic landscape of a context, it is marginalized. Similarly, when the language is not given the same status as other languages within the linguistic ecology, it is marginalized. As a consequence of this language exclusion or marginalization, speakers of these languages are either individually or collectively denied access, discriminated against or oppressed because of the language(s) they speak (Ndhlovu, 2007;

Mohanty, 2019). In other words, the process of language inequality or marginalization includes any action or attitude, conscious or unconscious, that subordinates individuals or groups of individuals based on their language. Subordination, which for the purpose of our project consists of being placed in or occupying a lower class, rank or position, can be enacted individually or institutionally (Tollefson, 1991). Mohanty (2019) suggests that it is, often, the socio-politically weak ethnolinguistic collectivities that are denied access to learning, services, or facilities because of their language. The subordination model focuses on children who are “silently excluded” from education for these reasons (Lewin, 2007) and fail to continue learning or achieve the required level of knowledge or competence.

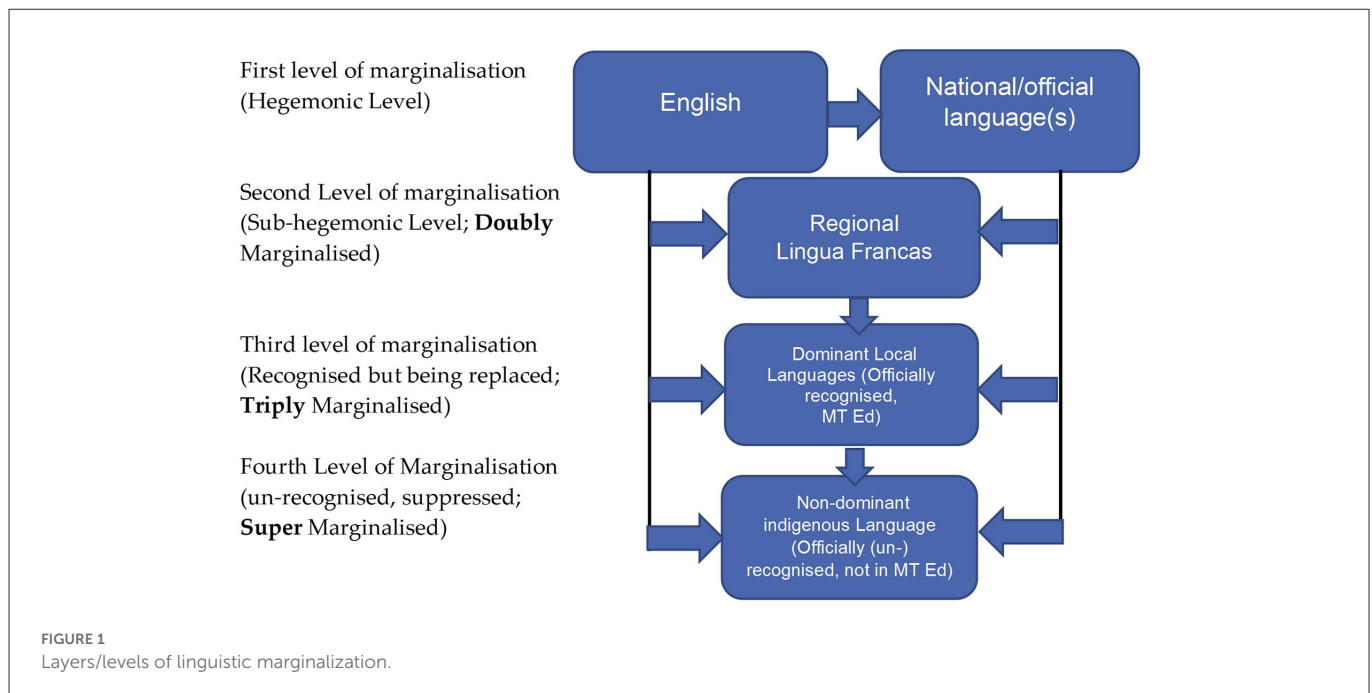
2.3. English and marginalization

When English displaces local languages or when some people have limited or restricted access to English language learning, it becomes an instrument of marginalization. According to Liddicoat and Heugh (2014), English as the former colonial language is used as the language of economic, political and educational dominance, and is also the language of access to the international community. However, as an instrument of power, English serves to marginalize speakers of indigenous languages in post-colonial states. In India, for instance, although speakers of the national language, Hindi, are relatively privileged, they aspire to high level bilingualism in Hindi and English to enjoy full citizenship and to participate in the global sphere (Hohenthal, 1998; Advani, 2009; Mohanty, 2010). In practice, thus, speakers of regional (state) languages are one step removed from participation at the national level, and two steps removed from access to international possibilities (de Varenne, 2012) especially when their languages are not recognized and/or included in the mother tongue education system. Similarly, Coleman (2011) demonstrates that access to the international language, English, in countries like Bangladesh and Pakistan is limited to students from middle class homes in private schools. Although lower income families and students do all in their power to gain access to English, there are socio-political constraints and ill-fitting educational programs that result in the further marginalization of students who do not have effective access to English language education. Thus, there are four layers of marginalization which are illustrated in Figure 1.

Most of the ReMaLIC target populations are speakers of local and indigenous languages from low- and/or middle-class communities. The ReMaLIC project aimed to investigate if, and to what extent, languages create barriers to using technology and/or technology-mediated learning.

2.4. Technologies

Another premise of the ReMaLIC project was that Information and Communication Technologies (ICTs) are increasingly a determinant of access to learning. The project sought to investigate how use of ICTs or the lack of it affects students’, their parents’ and teachers’ access to learning and learning resources. ICT has become one of the key aspects of modern society, and technology has been a part of everyday life even in developing countries. Consequently, there has been a rapid increase in the adoption of digital technology



in education, including in some of the remotest parts of the world (Huang and Chiu, 2015). ICTs can have a positive influence on a student's knowledge, skills and attitudes, and they can also help bring reform in pedagogy, school innovation and community services (Kozma, 2005); however, many studies have pointed out challenges that impedes the use of technologies in schools (e.g., Shrestha, 2016; Dawadi et al., 2020; Khan et al., 2021; Rana et al., 2021), especially in low- and middle-income countries. There is a rural and urban divide in how technologies can be used, making location of schools a significant factor in terms of student disadvantage (Subedi, 2020; Khan et al., 2021). Disadvantaged communities in low- and medium-income countries are often limited in their access to technology to support their education. The key factor is the cost, though there are other significant challenges, including linguistic, social and cultural barriers to the use of technology. More recent developments like smartphones and the internet may be hard to afford for poorer, and more marginalized communities. Numerous studies (e.g., Kukulska-Hulme, 2012; Lee and Sparks, 2014; Laudari and Maher, 2019; Dawadi et al., 2020) have identified barriers to using ICT in education in under-resourced contexts. Khan et al. (2021) suggests that the barriers in developing regions included lack of supported ICT infrastructure, insufficient funds, and lack of proper plans to integrate technology in education, which can be grouped into school level barriers. Other barriers they have pointed out are a lack of knowledge, skill and time among teachers (teacher level barriers), and corruption practices (such as misuse of government funds) which can be conceived as a system level barrier. Laudari and Maher (2019) argue that the school level barriers include absence of ICT infrastructure, old or poorly maintained hardware, and lack of suitable educational software. Similarly, the teacher level barriers include lack of teacher ICT skills, lack of teacher confidence, and lack of pedagogical teacher training. Finally, the system level barriers are the impacts of the educational, assessment and organizational systems on the uptake of technology in education. All of the challenges and barriers discussed in this

section mean that people in low-income settings are unable to access ICT-mediated educational resources and educational opportunities, which contributes to their exclusion from education.

Some scholars have also highlighted contrasting perceptions and emerging practices. For example, Subedi (2020) contends that a society can be polarized due to technology and making technology accessible to all is a significant challenge. Rana et al. (2021) suggest that ICT impacts on learner outcomes vary, while the perception of various stakeholders is mostly positive. According to Dawadi et al. (2020), schools in the LICs are developing new practices of using technology and making changes beyond just the use of new ICT tools; they are developing new practices and new beliefs about learning and adopting new strategies to engage with content and tools.

2.5. Technologies and educational marginalization

As indicated above, a lack of technological skills among teachers in low-income countries has been reported as the main barrier for using digital technology to conduct online classes (Altavilla, 2020; Chiatoh and Chia, 2020; Casacchia et al., 2021; Efrana, 2021). In this regard, Chiatoh and Chia (2020) and Marshall et al. (2020), for example, found that many schools in LICs did not have any relevant training schemes for teachers in place. Many teachers did not have their own digital devices, nor did they have access to any digital tools such as smartphones or laptops (Nashir and Laili, 2021). In LIC contexts such as in the South Asian and South African countries, internet and phone service providers could not meet the increasing demands of their customers, especially during the COVID-19 pandemic, and consequently, poor connectivity and unstable internet were among the main reasons for ineffective delivery of learning (Ela et al., 2021; Khan et al., 2021; Lukas and Yunus, 2021; Tarrayo et al., 2021). Their findings suggest that due

to the lack of technological pedagogical knowledge, and inability to access online platforms, teachers failed to develop required English language skills in students. Many of them did not know how to interact with the learners meaningfully using the inbuilt add-ins like the breakout rooms on online platforms like Zoom and Google Meet (Reich, 2021; Rouf and Rashid, 2021).

The use of technology in education or online teaching as an alternative mode of teaching seems to have started mainly during the COVID-19 pandemic in LIC contexts. As the respective countries and the teachers were not prepared for the transition, they failed to manage classes well, often resulting in chaotic classes (MacIntyre et al., 2020; Rouf and Rashid, 2021). As the internet vendors could not provide internet services in the remote and outlying locations, the teachers and their students were often left without access to learning and learning resources for months, causing enormous stress and anxiety. Additionally, as all the stakeholders—teachers, learners, guardians, and officials - are exams-driven in most of these countries, lack of online testing schemes could explain the learners' poor interest and participation in online classes. Therefore, continuous assessments and tests were confined to offline assignments and take-home tests only (Efriana, 2021; Lukas and Yunus, 2021).

2.6. English in a world of technology

This section reiterates the relationships between English and technology, the two main foci of the ReMaLIC project. Digital and mobile technology has revolutionized the way people learn and use English today. It has made it possible for everyone anywhere in the world to access English and learning resources, provided that they have an appropriate device and can connect to the internet. It can help overcome the access barrier as it does not discriminate between people based on their language and ethnic backgrounds, although sometimes knowledge of English may be assumed or required.

According to Crystal (2011, 2015), digital technology has created what may be termed as a “linguistic revolution”. As a consequence of the revolution, changes of all types and at all levels are taking place in the English language. These changes in its form, usage and styles have prompted the introduction of a new form of linguistics, which is called Internet Linguistics. An increasing number of academic institutions have set up programs in Internet Linguistics within the field of digital communication, and computer-mediated language and discourse analysis has become a major focus of study. It is, therefore, no exaggeration to suggest that digital technologies and English have interrelationships. While digital technologies have become a significant driving force in changing and spreading the use of English around the world, English as the more dominant language of technology has helped facilitate its access and use.

The interrelationships between English and digital technologies may be discussed in the ways in which they influence each other. Al-Kadi (2017) argues that changes taking place in the types of technologies and their changing uses tend to provoke linguistic and cultural change. To accommodate this emerging culture, dictionaries and other reference books are adding new and typically trendy words and concepts. Words such as “cloud”, “tablet,” and “catfish” are interesting examples of old words with new meanings which, with numerous other new words, are making their entries into the English dictionaries.

The sustainability of the English language is, thus, linked to the sustainability of digital technologies. A number of studies contend that digital technologies combined with the Internet facilitate communications, promote students' creativity, and improve English language learning skills (Ahmadi, 2018; Al-Sharqi and Abbasi, 2020). The Z-generation, born during the technology revolution, is “particularly proficient in engaging with virtual peers through quick social media exchanges to develop a sense of belonging and combat the fear of missing out on popular activities. Internet users can potentially use the unlimited online resources for learning, communication, career planning, and developing relationships” (Al-Sharqi and Abbasi, 2020; p. 2). Many schools, even those in outlying parts of LICs, now ‘encourage students to use online resources to enhance learning, and provide online portals that enable students to submit their assignments, check grades, and collaborate with peers’ (Strain-Moritz, 2016, as cited in Al-Sharqi and Abbasi, 2020). On the language front, the spread of English has provided unlimited access to almost all fields, including ICT and the economy (British Council, 2013). For English to sustain itself in the fast-changing world, it has to co-exist with revitalized multilingual education and the surging use of mobile and digital technology.

2.7. Conclusions from the literature review

The literature reviewed for the purpose of the project provided an understanding of the situations in low-income countries and of the tenets of the study. We found that rigorous studies to evaluate the impacts of ICTs in educational settings in developing countries, particularly in LICs, are limited (Laudari and Maher, 2019; Loh and Chib, 2022). Furthermore, the available literature does not provide accounts of the actual experiences of marginalized young people using technology and English in disadvantaged communities.

A number of issues were highlighted through the literature review. First, the constraints and limitations within which developing countries use technology in education. Cost is still a significant factor influencing digital learning in developing countries as the readily available mobile devices lack high-end capabilities and high-end devices are not yet readily available in these regions. Second, the literature review suggests that access to versatile technologies such as smartphones, as well as an ability to use the English language, can support young people's education in low-resource countries; however, school facilities and local teaching resources are often insufficient and may reinforce existing inequalities (UNESCO, 2016). Third, the literature indicates that digital technologies and English can overcome the divides and address systemic inequalities, yet those already marginalized in society are most likely to be further excluded and disadvantaged when ICT is added to educational provision. Finally, the English language can both provide access to global resources and at the same time marginalize speakers of indigenous languages.

The ReMaLIC project was designed around a number of broad research questions and the literature review confirmed that these were indeed questions that we needed to pursue:

1. What are marginalized students' teachers' and parents' attitudes toward the role of technology and the English language in promoting or reducing marginalization?

2. What are the experiences of these groups in using technology for student learning?
3. What is the perceived value of English to marginalized learners in relation to other languages in the target countries?

In this paper, we focus on young people's (i.e., students'/learners') perspectives in terms of their attitudes, experiences and perceptions. The next section provides contextual information about the ReMaLIC project, the research settings and methodology. After that, we report on our research findings in relation to languages (especially the value and role of English) and technologies in education in school and outside of school.

3. Research contexts

The ReMaLIC project, funded by the British Council, was part of their Widening Participation Research scheme which aimed to facilitate the production of academic research in the Official Development Assistance (ODA) context to benefit the learning and teaching of English throughout the world. All research projects undertaken as part of the scheme had to be ODA compliant, with the promotion of the economic development and welfare of developing countries as their main objective. Hence, the project focused on four ODA countries: Bangladesh, Nepal, Senegal and Sudan. Another rationale for selecting the four countries was that they have faced similar challenges in reducing marginalization in education. In all four contexts, marginalization has been a rampant phenomenon and exists more clearly in certain remote and underdeveloped regions.

All four countries have made remarkable progress in universal education and education for all; however, who receives quality education is socio-economically and geographically determined. Many children from marginalized communities either drop out of school or complete school education with very little learning because of barriers to learning opportunities at home. Therefore, educational marginalization in those contexts may be defined as being related to the "experience of being outside the mainstream, and it may also be linked to social disadvantage and exclusion of varying degrees" (Manusher Jonno Foundation, 2016; p.6). Educational marginalization is not only related to whether one receives education, but it is also important to examine "how the process and practices of being educated can foster wellbeing" (p. 29).

Gender is another social dimension connected to marginalization in the four research contexts, that may affect access to education. For instance, having discussed the context of Bangladesh, Dejaeghere and Lee (2011) argue, "gender discrimination remains deeply entrenched in families and in society, preventing many girls from fulfilling their academic potential and achieving wellbeing through education" (p. 29). Similarly, in the context of Nepal, Senegal and Sudan, there remain multiple factors, such as child marriage, a patriarchal value system, poverty, and gender discriminatory attitudes among parents that create a barrier to girls' educational attainment. With regard to gender issues in Senegal, Angers-Sall (2009) argues that from an early age, children internalize the gendered division of labor, namely that they recognize themselves as family helpers and the boys as financial supports of the family or agricultural workers to help their fathers. Indeed, the image of woman, wife, mother, and housewife (homemaker) is still relevant—especially in remote villages not only in Senegal but also in the other three selected countries. These kinds

of gender-based values and assumptions discourage girls from getting an education and having a professional career. Even though this stereotype seems to be diminishing, many young girls in the four research contexts are confined to the home to learn the tasks assigned to them in their future household.

Access to technology is also connected to marginalization in education in the four research contexts. ICT implementation in the educational sector can be defined by its geographical, socio-economical, and infrastructural obstacles. During the COVID-19 pandemic, additional barriers to using technology have been identified in all four contexts. Socio-economic disparities and infrastructural gaps between different regions of the countries led to varying and uneven levels of internet connectivity in each research context. Most school-age children (and teachers) living in rural areas and/or those with marginalized socio-economic backgrounds do not have access to digital devices and the internet (UNICEF, 2020; Khan et al., 2021). The impact of COVID-19 pandemic may further exacerbate digital inequities, widening the gap between the rich and the poor and thus compound the existing inequality in education.

Additionally, unequal English learning opportunities in school have forced many children, especially those from marginalized and disadvantaged backgrounds, to experience social inequality in the four research contexts where knowledge of English is expected to provide better career prospects and choices to students. Formal schooling has also reinforced marginalization of the students who come from ethnic and linguistic minorities (Khanal, 2017). Hence, marginalization in the research contexts is deeply associated with ethnicity, mother tongues and (so-called) minority cultures to which the formal school policies and pedagogies are hardly responsive. In the context of Nepal, the caste system further promotes marginalization (Devkota, 2018).

The four research contexts therefore present a complex picture of marginalization, as it is deeply associated with different cross-cutting factors: social, cultural, economic, educational, and linguistic factors intersect in terms of marginalizing a large section of people. Thus, marginalization in these contexts needs to be understood as a 'mosaic' of social, cultural, economic, educational, and linguistic inequalities. Sometimes, these factors intersect in several ways while shaping life and learning opportunities, and access to digital technologies.

4. Materials and methods

The study aimed at capturing marginalized young people's, and their parents' and teachers' lived experiences of using technology and accessing education in developing contexts. It was important to bring the least heard voices to the forefront, so that they can reach concerned authorities including policy makers, promoting further discussions on how to provide marginalized children with better access to technology for learning. Hence, we wanted to give a voice to our research participants, which could provide insights into their subjective world, i.e., their lived experiences, the way they construct their own identity and perceive their situation. We believe that giving a voice to research participants means they have an opportunity "to express their views freely and contribute to research agendas" (Grover, 2004; p. 28). Therefore, we used a qualitative research design comprising semi-structured interviews, classroom observations and focus group discussions (FGDs), and sought to privilege the voices, experiences, and lives of marginalized

children and their teachers and parents by involving them as active participants in our study.

4.1. Participants

Participants in this study were 13–15 year old children ($n = 160$, 40 from each country) from four developing countries: Bangladesh, Nepal, Senegal and Sudan. In each country, the participants were purposively selected from four state schools: 2 from rural and 2 from urban settings. The young people's parents ($n = 64$, 16 from each country) were also invited to take part in this study. Additionally, teachers ($n = 32$, 8 from each country) took part. This means that a total of 64 participants in each country (i.e., a total of 256 participants from the four target countries) took part in the study.

Participants in each group were representative of gender and physical location (rural and urban). In Sudan, participants were from the suburbs of Omdurman (inhabited mostly by war-displaced people) and White Nile (tribes such as nomads and Hausa); in Senegal, the research took place in Taïba Moutoupha and Ndindy, where the GER (Gross Enrolment Ratio) for girls is the lowest, and the dropout rate for both girls and boys the highest; in Bangladesh we were able to involve slum children in an urban area and in Bandearban, a remote part of the country where the literacy rate is 34.0%; while in Nepal, participants were from a Squatter community (urban setting), and the Tharu ethnic community in a rural location.

4.2. Research ethics

The British Educational Research Association ethical guidelines (BERA, 2018) were followed in order to conduct research to the highest ethical standards. All the participants were informed that taking part in this study was voluntary and informed consent from each participant was obtained prior to collecting any data from them. All data was treated as confidential and promptly anonymised.

4.3. Data collection

Semi-structured interviews, classroom observations and focus group discussions (FGDs) were the main methods of data collection in this study, along with fieldnotes. Data collection in each school started with classroom observations. Two classes of each selected teacher were observed first, and participants were asked to take part in follow up interviews and FGDs. All the parents and teachers selected for this study were invited to take part in individual interviews, whereas students were asked to participate in an FGD; then one student from each FGD was invited for a follow-up interview.

4.4. Data analysis

All the FGDs and interviews were transcribed and translated into English for the analysis, and the responses along with classroom observation notes were coded into themes employing a semi-directed thematic analysis approach. The data were looked at

through the lens of Activity Theory (Engeström, 1999) which recognizes learning as a social phenomenon and conceptualizes human activity as object (goal) oriented, collective and social. The theory views human relationships as interwoven with a range of contradictions, which are a driving force for change. It looks at the interactions between rules or social norms, community and division of labor (i.e., both horizontal division of tasks among the members of the community and the vertical division of power and status). Hence, we looked at the interaction between different social components when participants are involved in using technology for student learning.

Themes were mainly categorized into Activity Theory domains (Engeström, 1999)—tools, rules, community and division of labor. However, this does not mean that the coding overlooked aspects of interviews that are not covered by the theory. Despite the fact that most codes were directed by Activity Theory (AT), the coding was open to new categories. AT codes included tools, division of labor, community, rules and contradictions. Other major emerging codes included attitudes toward technology and the English language, strategies suggested by participants to reduce marginalization, motivation to learn English and technology, and the role of gender in marginalization. As thematic analysis is an iterative process (Braun and Clarke, 2021), Nvivo 12 was employed to aid systematic organization of the themes emerging through the analysis. To maintain quality in the data analysis and to increase reliability of the findings, an independent researcher was asked to second code around 10% of the data and the two codings were compared. The mean percentage agreement of 93% suggested a good reliability level.

5. Findings

We now turn to the findings of our research which pertain to attitudes toward English and technology; experiences of using English, other languages and technology; and consideration of relationships between languages and technologies. Quotes in this section are local translations into English from data collected in several languages.

5.1. Attitudes toward English

The analysis of the data derived from interviews, focus group discussions and class observations including fieldnotes in school and home contexts reveals that the students had a largely positive attitude toward the English language and English language learning. Such an attitude underlines their aspirations to promote their life-chances and opportunities in different sectors including further education, employability, science and technology, and global connectivity. For example, a conversation with a group of students in Nepal brings up several fields of activity (travel abroad, speaking with tourists, further study, work, and business) in connection with English language knowledge and communication skills:

Researcher: Do you think you need to know the English language?
 Students: Yes.
 Researcher: Why? (pointing to one student in the group).

S1: English is spoken everywhere so it is important. If I go abroad I need it.

Researcher: And you? (second student in the group).

S2: Many tourists from different countries visit our village, so I want to speak with them. In this regard, I need to learn English language a lot.

Researcher: What about you? (third student in the group).

S3: For further study, I need to know English.

Researcher: Why do you want to learn English? (fourth student in the group).

S4: I need to know English for visiting different places and doing a job.

Researcher: Finally, you? (last student in the group).

S5: For doing business. I want to learn more English for doing business.

(Students in Nepal)

In a comparable manner, a learner from Senegal observes that English, as an international language, has multisector applications, ranging from opportunities to participate in higher education to accessing science and technology:

English is useful because I want to study up to university, it is a very important subject. English is also an international language; it is spoken almost everywhere. It is also the language of science and technology. (Student in Senegal)

Many students in other country contexts also reported that English language knowledge enables them to communicate with the people from the outside world. In the absence of English knowledge, one experiences communication difficulties, which would in turn reduce the possibility of global connectivity and employability. A student from Bangladesh explained that there are multifarious effects in one's life in the absence of good English knowledge and communication skills:

Suppose I don't understand an English word, I can't pronounce or write it. If I pronounce it or write it then, I can find out with google search. Now if I don't understand the thing or it is difficult to understand then I will not be able to understand it in this case. Secondly, suppose a foreigner comes to visit Bangladesh. They want to talk to us. We need to communicate with him in English. No matter wherever you go, whether is it a senior employee or a relative, it is a pity if someone asks you something in English and you can't answer it or in the case of technology: mobile, computer, laptop whatever you say. Now everything is in English and if I don't know English, I can't use them, and if I can't use those, you won't get a good job. (Student in Bangladesh)

Finally, the students in all four countries most often linked their positive attitudes and motivations for learning English to better life chances and economic benefits in their future. They perceived English knowledge and communication skills as "instrumental" for attaining better jobs in the current labor market, be it in their home country or abroad. These instrumental desires inspired these students to appreciate the English language and to feel motivated to learn English and improve their communication skills through use of English.

5.2. Attitudes toward technology

Students' attitudes toward technologies were affected by personal beliefs, local contexts (inside and outside school including the home environment), and cultural mindsets. Regardless of their limited personal experience of technology use, students seemed conscious of different forms of ICTs, and the interconnectedness of the present world. A student from Sudan explained:

There are various types of technology, such as telephones, TV, and radios because the world is interconnected by the technology. (Student in Sudan)

Similarly, a student from Bangladesh expressed personal beliefs regarding the use of smartphones as follows:

Yes, it is utmost important to have the access and availability to technology in our home. If we have the access to smartphone we can easily search anything on the Google with a single click and learn more about it. Since today's age is the age of technology. Learning and gaining knowledge is possible in every field though a smartphone. We will have advantage if we have a smartphone, although much advantage can be gained if we have the access to internet along with it. (Student in Bangladesh)

The students from all four countries expressed their positive attitudes toward the use of technologies for different purposes. They believed that technologies can facilitate diverse types of tasks including preparing school lessons, learning English, networking, communication, seeking job opportunities, connecting with new people and places, and for entertainment. For example, a conversation in a focus group discussion with students in Nepal reveals multiple aspirations behind using technology:

Researcher: Why do you need technology?

S3: To search for the answer to a question by searching on a google search, watch football live, and listen to music. I don't have a course book so I type the name of the book in a Google search page number and do my homework.

S4: To search for difficult meanings, Facebook, watching videos, watching the news, speech, etc. I practice the speech by looking at the mirror.

S5: To solve mathematical problems, calculations, translating, watching films, YouTube videos, and chat.

R: And you?

S6: For watching YouTube videos, and news, making videos, listening to English music, and searching for difficulties.

(Students in Nepal)

Similarly, a female student in Senegal shared how technology could have a positive impact on her formal school learning:

Interviewer: Do you think that if you had access to technology, it would have a positive impact on your learning?

Student: If we had access to technology, it would have a positive impact on our studies because we would look up the lessons for clarification or look up the definition of words we don't know. (Student in Senegal)

Another student from Senegal remarked: “Technology in school would be very important for us who don’t even have a phone; we could do our research [searching] at school” (Student in Senegal). And in Sudan, students reported that they like technology, especially the internet and smartphones as they “make learning funny and amusing” (Student in Sudan), and are motivating in English language learning and “obtaining good grades at school” (Student in Sudan). In Bangladesh, a female student valued technology, especially smartphones and internet access:

Since today’s age is the age of technology. Learning and gaining knowledge is possible in every field through a smartphone. We will have advantage if we have a smartphone, although much advantage can be gained if we have the access to internet along with it. (Student in Bangladesh)

However, despite these personal beliefs, the teachers, parents and students also reported some negative attitudes toward the use of technology. These negative attitudes were constructed out of the local context or cultural mindsets. For example, many parents and teachers in Nepal and Bangladesh reported that their children were obsessed with technology and misused it. They mostly said that students used technology for entertainment rather than learning or preparing school lessons. Some parents explained that children, particularly boys, would get more engaged in playing games like FreeFire and Mind Crash, instead of preparing their school lessons at home. Teachers’ observations in this regard echo with those of parents. A participant teacher working in a school in a rural setting in Nepal remarked that “overuse of mobile phone at home has distracted many students from learning” (Teacher in Nepal). Similarly, a female student from the same context also commented that “mobile phones spoil our learning attitude” (Student in Nepal), indicating her belief that the use of mobile phones and the internet is not always good. Likewise, a parent of a student remarked, “If I give them [children] mobile to use, they do not pay more attention to their study” (Parent in Nepal).

Besides, the locally constructed cultural mindsets are found equally responsible for creating differentiated spaces of technology use. It is apparent in the narratives of female students in both the Asian and African societies observed. For example, participants often reported that female students in Nepal and Bangladesh are provided with fewer opportunities for using mobile phones at home compared to male students. A female student in Bangladesh commented:

Boys get phone but girls are deprived. At present, many girls get to use phone but the number is less comparing to boys. Specially for boys, they get to use mobile. Girls have duty toward her home so they don’t get the opportunity like that.
(Student in Bangladesh)

Such a difference was also observed in the contexts of Sudan and Senegal. In a conversation with the researcher, a girl from Sudan said:

Researcher: Do you have a permission to go if there’s a nearby café to use internet?
Student: No, we aren’t allowed to go to cafes. My parents differentiate between the male and female genders. Where they allow the men to go and don’t allow women. Because females

are younger but even if the male were younger they believe they can handle the situation in a better way than females. (Student in Sudan)

These narratives from students in both Asian and African contexts reveal that gender difference has been constituted around the opportunity to visit a cyber cafe for internet use and using mobile phones. The locally sustained cultural mindsets, for example, seeing female as “weak” and to be guarded for security reasons, and/or seeing differentiated roles between males and females, are not only shaping the personal beliefs and attitudes of children toward the use of technology, but also are institutionalizing differentiated home environments for using technology and linking it with learning.

5.3. Experiences of using English and other languages

The analysis of the students’ narratives also reveals that the learners from all four countries were mostly bilingual/multilingual. As observed in the field, the students were simultaneously interacting with two or more languages in their linguistic repertoire. In Nepal, the students in the rural setting were found to be using Nepali, the national language, as well as their local indigenous language, i.e., Tharu (the language that the Tharu ethnic group uses as its mother tongue) for the purpose of daily communication. However, in their school context, they use English and Nepali when learning these languages (as school subjects) and when the languages are used as the medium of instruction in other subjects. In the urban setting, however, the students from a squatter community reported that they were originally from different linguistic backgrounds such as Newari, Maithili, Rai, etc. Nevertheless, in the metropolitan context, they fully use the Nepali language for their daily communication, and Nepali and English languages in their school and classroom contexts. Therefore, the students in Nepal were found to be navigating a complex multilingual/bilingual space where the English language plays a role, as a female student from a rural setting explained:

Researcher: Which language do you speak at home?

S1: I speak Tharu and Nepali languages.

Researcher: Who do you speak Nepali and Tharu languages with?

S1: At home, I speak Nepali with my brother. I speak Tharu language with my parents, grandparents and Tharu friends. I speak Nepali with the friends other than the Tharus.

Researcher: Where do you use English language?

S: Mostly with teachers and friends in the school classrooms.
(Students in Nepal)

In Bangladesh as well, the participant students navigate a similarly multilingual space in their home and school contexts. For example, a female student from a rural setting in Bangladesh reported that both Bangla and English are normally used in the EFL (English as a Foreign Language) classroom context. But Bangla and also the local mother tongues are considered as the languages of daily communication at home and in their immediate community(-ies). A conversation with other students reveals that Bangla, the national language, is the common lingua franca for members of different

minority language groups. Since English is getting wider usage in education, and in media and communication in Bangladesh, these students experience increasing code-mixing and code-switching with the English language:

Researcher: What language is used to conduct the English class? Bangla or English, or both?

S1: Yes, both are used. Sometimes when sir says something in English most of the students don't get it. That's why sir explains that in Bangla.

Researcher: Okay, that's a matter of teacher's concern.

S1: We sometimes fail to speak in English properly, that's why we speak in Bangla as well.

Researcher: Okay, very good. And what language do you use outside of school?

S1: Outside of school I speak in Bangla but there are some English terms and words which I use.

Researcher: So, you use a few words in English. Okay. And at home?

S1: At home I use Bangla.

(Students in Bangladesh)

The experience of the students in the context of Africa is even more complex in this regard. In Senegal, students with different mother tongues sit together in the classroom. However, their local languages are hardly used in the formal classroom setting. In the observed classroom, the students speaking different languages as their mother tongues, for example, Fulani, Fula, Serere, etc., shared a common classroom space. However, their home languages were hardly used in the classroom. Rather, the teachers encouraged them to engage in learning French and English. As can be seen in the focus group discussion below, the young people reported that they used their local languages at home, while English and French including Wolof (the local language with a little wider usage in Senegal) are used when learning these languages and as the mediums of instruction in the classroom context:

Interviewer: What language do you use in class?

Student B (boy): We use French more in our classes but sometimes we use Wolof

Student A (girl): We use French at school and English during English classes. We use English but to better explain certain words the teacher uses either French or Wolof

Interviewer: Outside of school what language do you use?

Student D (girl): We use Wolof at home

Student E (male): We use Wolof outside of school because everybody living in the area can speak Wolof.

Student A (girl): Outside of school, Wolof people speak Wolof, Fulani speak Fula, and Serere people speak Serere. All other communities can speak Wolof very well. Wolof is spoken nationwide.

(Students in Senegal)

In Sudan, Standard Arabic and English are mostly preferred to the local languages in school and classroom spaces. The students reported that they also used local Arabic while communicating with friends in the classroom context. However, they said that there are different local languages (mother tongues) to communicate in

their respective home and immediate social contexts. A conversation with a group of students shows that they belonged to seven different local language backgrounds. In the case of language use outside the school context, English appears in code-mixing in their daily communication:

Researcher: What language do you use outside? In your house, the street, with your friends?

S1: We speak "hawsa" outside of school.

S2: Arabic.

S3: Local Arabic.

S4: The "flata" language, the "mulu" language.

S5: The "nuba and bargo" language. Everyone uses their own language.

S6: Between us we use the "hawsa" language, or when you want to call someone names behind their backs so they don't understand you. Ha ha ha.

Researcher: No English at all?

S1: Sometimes.

S2: When your mum asks you to get something you say "yes" or when she asks you about something you say "no" or in the phone you say "hello"

(Students in Sudan)

Particularly regarding the use of English, the participants from all four contexts explained that they rarely use English at home. However, English is present in their daily use of the language in the form of code-switching and code-mixing. The speaker's generation matters in the case of language use. For example, the learners use their own mother tongues while communicating with parents and grandparents. However, when they communicate with their peers and siblings, they prefer the national or official languages that they are mostly exposed to at school. While observing the communication of the students of the Tharu community in a rural setting in Nepal, the students preferred their mother tongue(s) while communicating with their parents and grandparents. However, when they interacted with peers and siblings, they preferred the Nepali language to their local tongues. Nepali in Nepal, Bangla in Bangladesh, Arabic in Sudan and Wolof and French in Senegal were found to be more common among the students for their peer and classroom conversations compared to other languages.

5.4. Experiences of using technology

Students' experiences of using digital technologies are shaped by their access to the technologies, required skills, and rules that others set to govern their usage. The students reflected on a wide range of technologies for supporting education, showing both the constraints they faced but also their creativity in finding ways to support their education both in and out of school. When asked about technologies for learning, they included not only smartphones and laptops, but also radio, television, and calculators:

we use [...] Scientific Calculator. (Student in Bangladesh)

we have a TV where I watch and listen to some channels. (Student in Sudan)

For our participants, mobile digital devices outside of school generally meant smartphones (capable of running applications and accessing the internet). Laptops were chiefly seen as devices encountered through school. The global pandemic accelerated the process of using mobile technologies to support learning:

Teacher sent homework during [the COVID-19 pandemic] lockdown *via* Messenger app, and student engaged using Zoom (Student in Nepal)

Students recognized that there are potential barriers that can prevent their effective use of mobile devices to support their learning in and out of school. “Access” as the first level of digital divide (Loh and Chib, 2022) shapes many students’ experiences:

Interviewer: What could be done, so that you can use the technology easily?

Student: We need financial support. (Student in Bangladesh)

Access to devices and networks varies, with some children having their own devices, others borrowing from family members, and some drawing on extended social networks for internet connections:

I use the internet at my aunt’s home. My mother has a mobile phone. I use her mobile phone whenever necessary. (Student in Nepal)

Few schools visited by ReMaLIC researchers have networks that enable students to use mobile digital devices. Some schools have networks, but only for teachers’ use:

There are computers in the principal’s office, but we students don’t have access to them, it’s for the administration’s work. (Student in Senegal)

As observed in both rural and urban settings in Nepal, each of the schools visited by the project’s researchers has a small computer lab with a few desktop computers. The school curriculum now has computer studies for both basic and secondary levels. Therefore, as reported by the students, they get a chance to visit the computer lab and work on typing, drawing, and creating files, just once a week. However, as the number of computers is less than the number of students, two to three students need to share a single computer while using the lab.

A key divide appears to be between urban schools having better digital access (networks and devices) than rural schools, though one rural school in Senegal has a WiFi network that allows students to access the internet, showing that generalizations do not always hold true. Mostly though, students at school, just like outside of school, have to resource their own provision:

...at school you look for a friend who has a phone—if he’s finished using it, he lends you and you do exercises or your research. (Student in Senegal)

“Home” and school are the two places where the students interviewed are most likely to be able to access and use mobile digital devices, hinting at a dependence on others’ resources:

...I can’t have access to technology elsewhere apart from home. (Student in Senegal)

Students recognize that gaining the skills to effectively use devices is important:

I think we should get to use one of three among mobile phone, computer and laptop at school. I wish teachers would teach us how to use computer. (Student in Nepal)

Students’ experiences of mobile technologies are regulated both formally and informally:

It’s impermissible [sic] to bring smartphones to school - Because students may play with them. [...] no problem with the laptops. (Student in Sudan)

Outside of school, students’ use is affected by family rules. They may have access to technology only when they have school assignments, as explained by a parent and a student:

We wouldn’t have given the phone as it causes problem to the studies, although we had to provide him with an old smartphone so that he could read and write for the exams. But we take the phone once he is done with the exam. (Parent in Bangladesh)

My older brother, who is a teacher, makes it easy for me to access his phone and this allows me to visit certain pedagogically oriented applications such as “sama Ecole”. (Student in Senegal)

5.6. Relationships between languages and technologies

Findings of this study suggest that the English language and technology are closely connected. Most participants expressed the view that functional knowledge of English is important for them as English has become the language of technology and it has been used in most digital devices.

Some students shared the challenges they faced in using technology because of their low proficiency in English, for example this student in Sudan:

The language of computers is English and I’m not good at English—so it’ll be difficult for me to use technology. If you want to use the device and you don’t know English, you won’t be able to write the words like “book” because the keyboard is in English. (Student in Sudan)

A student from Bangladesh also reveals that English and technology are intricately connected and complementary to each other. The student’s comment (quoted earlier) “...Now everything is in English, and if I don’t know English, I can’t use them [technological devices]” implies that one should have a good knowledge of the English language for operating digital devices. It is because the parts and accessories are referred to in English, and operating instructions are mostly written in English. Another student from Sudan also pointed out that English language is needed for using digital devices:

Yes it's important because most of the devices require an understanding of the English language; so if you have a device that is in English you'll need to understand English. Hence, why learning English is necessary. (Student in Sudan)

Findings suggest that technology and the English language are connected in such a way that knowledge of English facilitates learning technology and vice versa:

The English language facilitates the process of using technology because all technological devices are in English. (Student in Sudan)

Furthermore, there are indications that technology is used for learning English:

I could improve my English with the help of a mobile. (Student in Nepal)

6. Discussion

The ReMaLIC project investigated technology, English and gender as factors that contribute to educational marginalization in four countries: Bangladesh and Nepal in South Asia and Senegal and Sudan in Africa. English, as an instrument of power and a dominant language, can marginalize speakers of minority and indigenous languages. In most of South Asia, for example, even though the nation-states have their own national languages, speakers of English are relatively privileged. The findings presented above indicate that the participants regarded English knowledge and communication skills as instrumental for better life and job opportunities, be it in their home country or abroad. This is in line with [Advani \(2009\)](#), [Giri \(2019\)](#), and [Mohanty \(2019\)](#) who contend that people with proficiency in the language are more likely to succeed in employment and educational opportunities than those without. Speakers of minority and/or indigenous languages, with little or no access to English are triply marginalized because they are one step removed from participation at the national level, and two steps removed from access to international resources. Similarly, even though use of ICT is perceived as a positive contribution to enhancing teaching and learning for children ([UNESCO, 2016](#)), access to it and its uses vary, often serving as barriers for the children of poor communities ([Subedi, 2020](#); [Reich, 2021](#)). Consequently, those already marginalized in society are further excluded. Furthermore, female children in disadvantaged communities face different forms of social inequalities, biases and discriminatory gender norms which create a barrier to girls' education or career prospects. Without education, girls are deprived not only of life chances but also of a secure future ([UNCTAD, 2020](#)). Our research study confirms that gender, in the guise of cultural mindsets, plays an adverse role in girls' access to digital technologies outside of school and hence their opportunities for learning. This supports the arguments put forward by [Angers-Sall \(2009\)](#) and [Dejaeghere and Lee \(2011\)](#) that discriminatory attitudes create barriers for girls in the relevant countries.

The research suggests that apart from socio-economic factors, natural disasters, political conflicts and geographic remoteness, digital technologies and English are also common factors

contributing to inequalities and educational marginalization across the ReMaLIC target countries. It appears that, despite the political will on the part of the respective governments to increase quality and access, the education sector is challenged by serious shortcomings. [UNESCO \(2010\)](#), [Subedi \(2020\)](#), and [UNCTAD \(2020\)](#) draw our attention to unacceptable levels of inequality which are responsible for marginalization in education: (a) the wealth divide which means that being born into a poor household doubles the risk of being in the bottom 20% (the marginalized group); (b) regional divides mean that living in areas such as rural and outlying geographic pockets poses a risk of marginalization. Gender issues, poverty, language, and culture often combine to produce an extremely heightened risk of being left far behind. The communities, disadvantaged though they are in several respects, work hard to manage inequalities. However, lack of access to adequate technological tools and learning resources pushes them further down in the equality and inclusion ladder ([Shrestha et al., 2021](#); [Tarrayo et al., 2021](#)). In the following sections, we discuss how English and technology mitigate against equitable or inclusive education.

6.1. English and inclusion

The participants of the ReMaLIC project recognize the indispensable position of English for education, employment and better lives. They affirmed its key role in their social mobility and survival in the globalized and interconnected world. For them, English in their respective societies plays several crucial roles. English is one of the *de facto* languages of communication in formal and academic settings and a prerequisite for education and professional jobs. It is seen as a source of self-improvement and as a means of career success domestically as well as globally.

Not knowing English can contribute to young people being disadvantaged or even marginalized, and their parents may be unable to help them with their English language learning. Parents from Sudan, for example, said that "we are marginalized because we do not know how to speak English language" and that without it "we suffer a lot". In Nepal, as in the other target countries, parents said that "if you speak English you have the power to control everything. It is the weapon of today's world". These findings support earlier research in LICs ([Liddicoat and Heugh, 2014](#); [Devkota, 2018](#)). Since parents also noted that their children sometimes prefer to speak English more than local languages, this could potentially create a dominance of English over other local languages and English could therefore play a gate-keeping role in access to higher education and key socio-economic positions, as has been argued by [Giri \(2019\)](#). Our research findings also highlighted that local and national languages play an important role enabling young people from diverse ethnic backgrounds to communicate with one another in school. This suggests that young people may choose to use different languages in different settings, but opportunities to improve and practice their English are important for their futures.

6.2. Technology and inclusion

The technological revolution has impacted education in all countries including the low-income countries. As [Huang and Chiu \(2015\)](#) and [Dawadi et al. \(2020\)](#) point out, young people need

technology to access global educational resources and to connect with others elsewhere. The use of technology saves time and effort to retrieve information, but only if there is good access to technology and it is affordable. Our research findings show that young people often share devices and they access the internet where they can, rather than where they would want to. School facilities such as computer labs are reportedly underused, or perhaps they are insufficient for the number of students wishing to use them. This finding is in line with the conclusion by Khan et al. (2021) and Rana et al. (2021) who suggested that the young children's access to and use of technology is constrained by the lack of required devices and infrastructure in schools.

The advent of ICTs in education offers an unprecedented opportunity, given their growing reach into populations across the globe. The challenges are, however, many and inevitably complex. The long-term implications for the use of new technology are profound, both for the delivery of quality education and for a new vision of what it means to children, especially those who are left behind. Innovative tools can help meet the goals of improving education, reducing poverty, reaching gender equity, and improving learning. Nevertheless, these same developments could create new disparities between richer and poorer sections of populations. The findings presented in the sections above suggest that young people recognize the benefits of using technology for learning. However, they are also concerned about limitations in terms of access to technology (not having computers at school) and connectivity to the internet (school not providing an internet connection).

There is, therefore, a need to design programs to empower disadvantaged populations, especially those who dwell in the periphery, to use technologies that are culturally appropriate and locally deliverable. The domain of ICTs and learning is set to dominate educational discourses in developing countries in the years to come. The uses of appropriate tools in communication and learning need to be clearly spelled out, and their impact on student learning gains, teacher pedagogy, and accountability through community participation should be determined. According to Rana et al. (2021), carefully planned and worked out interventions with well-defined purposes can lead to their meaningful use. Investments in measurable, sustainable, and scalable design solutions as part of the implementation framework will be an important way forward.

6.3. Limitations

In this research we were able to reach a number of marginalized communities in each target country; however, to get to the schools and the participants in these communities sometimes involved difficult travel and having to fit in with school schedules. The in-country project partners had to modify data collection plans when an unexpected situation such as flooding or political unrest meant that an alternative community/location had to be found. There were challenges in reaching the young people's parents, since they typically work in jobs that give them no flexibility to take time out to contribute to research; consequently, we involved those parents that were more available. Furthermore, conducting research in multiple languages, followed by translation into English for the data analysis, presents some risks in terms of potentially misunderstanding the exact intended meanings.

7. Conclusions and implications

The ReMaLIC project, by conducting an extensive literature review and by employing various qualitative methods, has studied societal perceptions and attitudes toward educational exclusion, marginalization and the systemic provisions that are in place to address it. The study explored the ways in which different groups of people access technology and opportunities to learn English, and the ways in which schools, teachers and parents provide access and/or support to children in their respective contexts.

We have discussed the positive roles of digital technologies and English, and the barriers they may pose for learning for the children in LICs. The study findings are significant because they suggest that despite efforts by stakeholders in the respective contexts to manage inequalities in terms of use and affordability to access technologies and English learning resources, there are discrepancies in their access and usage. Our research revealed that the children often encounter multifaceted barriers, such as socio-cultural, linguistic, economic, technological, and educational, preventing them from being able to engage effectively in learning and to shape their life prospects. Consequently, those already marginalized in society because of their socio-cultural, geographic and economic backgrounds, are further excluded and disadvantaged.

The study has several key implications for policy and practice. The first implication concerns the use of English in education. Findings of the study suggest that most participants consider English to be a tool for socioeconomic, educational and professional development and there is no or little resistance for it to become a dominant language in their linguistic context. Therefore, English needs to be situated appropriately in the local linguistic landscape on the principles of linguistic co-existence, with a defined role and status in the local language education policy documents. Additionally, not knowing English at all can hamper using technology. Therefore, English and technology must be a part of basic education.

Another implication of the study concerns the use of language in schools and opportunities to learn English. Since most students value the roles of English for their future career/lives, they are interested in learning English, and they would like more opportunities to use English in schools. This finding has an important implication for the use of language in schools, namely that schools and teachers need to create more English language learning opportunities for students.

Our findings also indicate that students do not have good access to digital devices, such as laptops and computers, that they can use for learning at school. Students' inadequate access to technology may impact on their learning. If young people in marginalized communities are to be given equitable learning and life opportunities, it is necessary to empower all of them, irrespective of their backgrounds, by providing them with the required technology. The implications for the respective authorities are that they should work out proportionally fair and justifiable implementation strategies in terms of resource distribution, technology and classroom equipment, and creating more opportunities for disadvantaged children. It is important to design strategies to empower marginalized children, especially those that are deprived of opportunities to use technology for learning. The use of appropriate tools in education needs to be clearly spelled out, and students' equal access to technology must be ensured. Carefully planned and worked out interventions with well-defined purposes can lead to the meaningful use of technology.

Another pertinent implication for schools arises from the contradiction that young people find it easier to learn with technology, but many of them get few opportunities to use technology for learning at home. Students make limited use of technology at home mainly for two reasons. First, some do not have access to it. Second, many students have access to it, but their use of technology is heavily controlled by their parents, as parents are concerned that their children can misuse technology and it can be harmful for them. So, they prevent them from using it. Therefore, schools and teachers need to run an awareness program for parents to help them understand the roles of technology in students' learning and provide some guidance to the parents on how they can better support their children in using technology for learning. A gender-based digital divide evidenced in this study questions the roles of parents in student learning. The divide exists mainly because of parental restrictions and parental fear for girls' online safety. However, instead of controlling daughters' use of technology, parents could guide their daughters (and sons) on how to use technology for learning and make them aware of the negative sides of technology.

This study suggests avenues for further research in the field of education to expand the findings of the study. There is a need for multiple research studies to validate the research findings and to produce a more comprehensive picture of technology and language use for student learning in developing contexts. This type of study could also be extended to a greater number of participants and to other stakeholders of education including school heads, teacher trainers and policy makers to deepen understanding of technology use in relation to family values and cultural mindsets and help to build more extensive data sets on technology-supported learning. Future studies could also look at the children's longer-term experiences of using technology and progress in education and employment.

More evidence is required on how parents from different geographical locations and professions support students in using technology for learning. This study has also observed individual differences regarding parental support for students. Hence, it is recommended that future research includes more parents from different social strata. Additionally, as this study was limited to public schools, more research is needed to explore how technology is used for student learning in private schools.

It is estimated that by the year 2040, nearly half of the world's population will become functional users of English for reasons of education, business and employment (Rintaningrum, 2016), yet our research adds to the growing evidence that many learners in LICs will find themselves trailing behind. A balance needs to be struck between improving their opportunities to learn and use English and working toward pedagogical approaches that incorporate different means of multilingual expression and culturally appropriate designs for use of technology in education, both at school and outside of school.

Data availability statement

The datasets presented in this article are not readily available because the nature of the data makes it unsuitable for wider

sharing. Requests to access the datasets should be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by Human Research Ethics Committee—The Open University (HREC/4107/Kukulska-Hulme/Dawadi). Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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