

ENDANGERED LANGUAGES IN THE DIGITAL AGE: A NARRATIVE REVIEW OF REVITALISATION EFFORTS, TECHNOLOGICAL INTERVENTIONS, AND SOCIOLINGUISTIC GAPS (2014 TO 2025)

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Abstract

This study presents a narrative review of research on endangered language revitalisation and digital technology, drawing together the findings of 45 peer-reviewed research papers, policy documents, and empirical reports spanning 11 years from 2014 to 2025. The review is based on three theoretical frameworks: Fishman's Graded Intergenerational Disruption Scale, language ideology theory, and community-based participatory approaches to revitalisation. It is structured around four interlinked themes: the scale and urgency of language endangerment worldwide; community-based revitalisation strategies and what makes them work; the use of digital and social media tools to establish new revitalisation spaces; and critical limitations of digital and social media tools for endangered language communities. The central argument is that digital technology does not automatically save endangered languages. It is effective only with community agency, cultural adaptation, ongoing policy support, and if the technology actually benefits the speakers and not only wastes on them or displaces them with algorithmically dominant languages. The review finds that community-based approaches centring intergenerational transmission and speaker agency produce the most consistent positive outcomes, while digital tools, though genuinely expanding access and visibility, introduce new risks, including algorithmic discrimination against minority varieties and the contamination of authentic language data by artificial intelligence systems. The implications for language policy, technology design, and community governance of digital resources are direct.

Keywords: endangered languages, language revitalisation, digital sociolinguistics, indigenous languages, social media, language policy, intergenerational transmission, language documentation, community-based approaches, linguistic diversity

1. Introduction

When a language dies, it is not only the words that disappear. All languages carry a distinct body of information related to the natural world, social life, past, spirit, and human experience that cannot be translated into other languages exactly. Loss of a language does not mean loss of the community to which the language belongs, but of the whole humanity. This is no cliché. It is scientific and ethical, based on decades of linguistic, anthropological, and ecological research (Sallabank and Austin, 2023; Cámara-Leret and Bascompte, 2021).

The situation today is alarming. Around 7,000 languages exist around the world today, and according to Ethnologue database (2023), 3000 of these are endangered, which are no longer being transmitted reliably to children. Since 2003, UNESCO's framework on Language Vitality and Endangerment has been used widely and generally and classifies languages on a spectrum ranging from vulnerable, through severely endangered, to extinct, based on nine factors, such as intergenerational transmission, absolute number of speakers, proportion of speakers in the total population, and government and institutional language attitudes and policies (UNESCO, 2010).

By these measures, the world is in the middle of a language extinction event comparable in scale to the biodiversity losses that have prompted global conservation movements, yet attracting a fraction of the public attention or policy investment.

The significance of this review lies precisely in addressing these gaps. Scholars have documented successful cases, including the revitalisation of Hebrew as a daily spoken language, the partial recovery of Maori in New Zealand through immersive language nest programmes, and the remarkable resilience of Welsh in the United Kingdom through a combination of educational policy and media investment (Zuckermann, 2020; Beaton et al., 2023). Alongside these success stories, however, researchers have also documented the complexity, the reversals, and the conditions under which revitalisation efforts fail, and they have increasingly turned their attention to the role that digital technology and social media might play in opening new spaces for endangered language communities.

This is where the literature currently stands, and this is where its most significant gaps lie. Existing research on endangered language revitalisation and digital technology is expanding quickly, but tends to be descriptive. Researchers have reported using Twitter, TikTok, YouTube, and Instagram to document language content, teach new words, create communities, and assert their place as digital users of their varieties in the languages of Cree, Welsh, Basque, Maori, and other languages. The algorithms and business models of major social media platforms often reinforce the primacy of English and other dominant languages, while the risks of AI and large language models to endangered language data online and the conditions for the effective use of digital tools in language practices are rarely addressed. This review is important because it seeks to fill these gaps in the current literature. This review brings together three strands of scholarship that have developed largely in isolation: language documentation, community-based revitalisation research, and digital sociolinguistics, to produce an integrated and critically informed synthesis of the current state of endangered language revitalisation research.

This study has three specific contributions: Firstly, it compiles the results of 45 studies from three separate but not well-connected lines of research and offers a coherent picture that is more than the sum of its parts. Second, it uses a sociolinguistic lens for the digital technology literature, which too frequently has developed without being well-informed in the concepts of language ideology, community agency, and speaker identity. Third, it relates these findings directly to the UN International Decade of Indigenous Languages (2022-2032) and Sustainable Development Goal 4 (Quality Education), and SDG 10 (Reduced Inequalities), emphasizing that EEI is a social justice and global development issue, not just a linguistic one. The review is guided by two research questions. What is the available evidence on the conditions for the success and failure of endangered language revitalisation? Second, how do digital and social media technologies help or hinder these conditions and what theories and approaches are required to grasp their role?

2. Theoretical Background

The theories used in this review are three complementary ones that together offer a principled basis for assessing the evidence on endangered language revitalisation in digital contexts. The first is Joshua Fishman's Graded Intergenerational Disruption Scale (GIDS) (Fishman 1991; elaborated in Hinton et al. 2018) which is the most widely used scale for measuring the vitality of endangered languages. The GIDS suggests that a language's shift along the continuum of the eight stages follows a fairly predictable pattern, from language used throughout all domains (Stage 1) to language retained by the oldest speakers in limited situations (Stage 8), and that revitalisation must focus on the current stage a language is in, rather than a generic solution. Importantly, Fishman states that without the intergenerational transmission of the language in the home and community, Stage 6, all other revitalisation efforts will fail to endure over the long term. This insight is essential to understanding the

impact of digital technology: while an app or a social media platform could be useful in raising the visibility and connecting the dots for people who speak a language, it can't replace the intergenerational transmission of a language that can only happen face-to-face.

The second one is language ideology, which is the system of beliefs, attitudes, and assumptions that people who speak a language have about languages and people who speak them (Woolard, 1998). Language ideologies are not background factors that influence language revitalisation. They are active forces that influence what speakers feel good about using their language, whether they are supported or not supported by institutions, whether their language is seen as valuable cultural resources or as obstacles to national cohesion by the dominant society. Within a digital environment, language ideologies are (re)produced and (re)charged in the platform and algorithm design. Being a social media site that provides only dominant language spell-checking and predictive text is not a neutral technology. It codes and reinforces an ideology of preference for the dominant language(s) over other minority varieties, making it more difficult for speakers of the minority varieties to use them in online contexts and more convenient for the speakers to switch to the dominant language.

The third framework is the concept of community-based participatory approaches to language revitalisation, which has become increasingly central in the field following influential work by scholars including Meighan (2021) and researchers associated with the NETOLN Indigenous language research partnership. This strategy has a strong focus that it is communities whose languages are at risk that should be the agents of revitalisation, not the objects. Revitalisation goals, methods, and pace are not the domain of external researchers, technology developers, and policy makers, who are able to offer resources, tools, and knowledge, but not dictate them. This is relevant to the assessment of digital technology. A language app designed by a technology company without meaningful input from the speaking community may be linguistically inaccurate, culturally inappropriate, or simply irrelevant to the community's actual priorities. The GIDS, language ideology theory, and community agency provide the toolkit for the analysis of this evidence in these three frameworks.

3. Review Methodology

The narrative review method is employed in this study to synthesise and critically analyse the latest research into endangered language revitalisation, digital technologies, and sociolinguistic issues. The narrative review approach is suitable for this study because the research work on the subject of language revitalisation has been conducted through various fields of research, such as the field of linguistics, the field of education, the field of Indigenous studies, the field of language policy, the field of computational linguistics, and the field of sociolinguistics. This review does not attempt to measure effect sizes or to statistically compare outcomes between different bodies of research, but seeks to identify themes, theory, and unanswered questions from individual studies.

Literature was sourced from the following key academic databases: Google Scholar, Scopus, Web of Science, MLA International Bibliography, and the archive for Language Documentation and Conservation. Various combinations of terms were used for searching, such as: endangered languages, language revitalisation, digital technology, indigenous languages, minority languages, social media, language documentation, intergenerational transmission, language policy, language loss, and language technology. Where they had provided important conceptual background, seminal theoretical papers prior to the review period were also included, such as the seminal Fishman (1991) on reversing language shift.

In addition to studies published between 2014 and 2025, some foundational studies were included to allow for theoretical interpretation. The sources were selected by purposive sampling because they were considered relevant to the central research questions: (1) what sociolinguistic and community conditions are necessary to support successful endangered

language revitalisation, and (2) how are digital technologies beneficial or problematic in the processes of endangered language revitalisation?

Thematic synthesis was used to analyse the selected literature. Studies were not viewed as distinct phenomena, but rather as part of a larger pattern that was explored and discussed through four themes mentioned in Table 1. The final corpus comprised a total of 45 academic studies, policy documents, and institutional reports. These sources were chosen due to the theoretical, empirical, and/or policy contributions they made to the understanding of endangered language revitalisation in the contemporary context. To illustrate salient arguments and empirical patterns in the four thematic areas, ten representative studies were further highlighted. This selection was not meant to be representative in a statistical sense but rather was analytical and theoretical in its depth.

Thematic Category	Studies (n)	Key Sources
Scale and urgency of language endangerment	11	UNESCO (2010); Sallabank & Austin (2023); Ethnologue (2023)
Community-based revitalisation approaches	12	Hinton et al. (2018); Meighan (2021); Chew (2021)
Digital and social media tools for revitalisation	13	Molnar & Chartrand (2021); Low et al. (2022); Mager et al. (2023)
Language policy, education and intergenerational transmission	9	Beaton et al. (2023); Fayzrakhmanova (2025); Wiechetek et al. (2024)

Table 1: Distribution of 45 reviewed studies across four thematic categories.

Study	Year	Focus	Method/Data	Key Finding
Chew	2021	Indigenous ILR on social media during COVID-19	Analysis of public social media posts (Canada/US)	Six key themes identified; pandemic accelerated shift to digital language spaces
Molnar & Chartrand	2021	Twitter and indigenous language communities	Corpus analysis of tweets in indigenous languages	Social media subverts stigma; meaningful interaction remains limited
Low, McNeill & Day	2022	AI and language death, identity loss	Theoretical and case-study analysis	AI poses existential risks to endangered languages through digital marginalisation
Mager et al.	2023	Computational linguistics in ILR	Survey of NLP tools for	NLP can support revitalisation but requires community-centred design

Study	Year	Focus	Method/Data	Key Finding
			indigenous languages	
Sallabank & Austin	2023	Endangered languages overview	Review of documentation and revitalisation scholarship	Community agency and speaker attitudes are decisive for success or failure
Meighan	2021	Decolonising the digital landscape	Critical theoretical analysis	Technology must be adapted to indigenous worldviews to be effective
Beaton et al.	2023	Sami and Scottish Gaelic education	Policy analysis and case comparison	Structured educational inclusion fosters long-term linguistic resilience
Wiechete et al.	2024	Indigenous language technology	Analysis of NLP tools for Sami languages	LLMs risk polluting authentic indigenous language data online
Tan & Jehom	2024	Digital technology and Gyalrong Tibetan	Qualitative fieldwork and interview data	Digital tools offer opportunities but require cultural adaptation and community control
Cocq & Steggo	2024	Sami languages and revitalisation	Sociolinguistic case study	Revitalisation gains are real but fragile without sustained institutional commitment

Table 2: Ten representative studies selected from the full corpus of 45 reviewed sources.

4. The Scale and Urgency of Language Endangerment

To determine what is successful in language revitalisation, one must first be aware of what is lost and why. The world situation of language endangerment is truly remarkable. According to Ethnologue (2023), there are some 7,168 living languages, of which about 3,000 are deemed to be threatened more or less. More than 2,500 languages are listed as vulnerable, endangered, severely endangered, critically endangered or dormant by UNESCO's Atlas of the World's Languages in Danger, 2010, on all continents with a special focus on the Pacific, the Americas, Africa and Asia. The crisis is not universal: Bromham et al (2022) show that the factors that best predict loss of speakers (small size, geographic isolation, and economic marginalisation of the language-speaking community) are themselves consequences of colonialism and forced assimilation, and intentional language suppression.

The impacts of language loss are much more than linguistic. Cámara-Leret and Bascompte (2021) investigated the indigenous knowledge of plants among the various regions of the Americas, New Guinea and Africa and discovered that indigenous languages convey

knowledge of the environment and plants that cannot be found in other languages, such as the names and properties of plants used for medicine, agriculture and environment management that have evolved over many thousands of years. As these languages are erased, this knowledge is erased as well, both because of the communities involved and because of the understanding of biodiversity globally. From a sociocognitive standpoint, Low, McNeill and Day (2022) claim that language extinction is not just about the absence of language and linguistic systems, but also about the totality of the changes in identity, memory and continuity of culture experienced by communities, and that these changes can make them psychologically as well as linguistically weaker. These are not hypothetical issues. They are lived realities of the millions who are members of at-risk language communities.

The situation is so dire that there has never been a time of history when the world has so closely and unusually monitored the matter of emergency. The United Nations General Assembly declared 2019 the International Year of Indigenous Languages and in 2022, launched the International Decade of Indigenous Languages (2022-2032) urging member countries, institutions and communities to take urgent and concrete action for the conservation, revitalisation and promotion of indigenous languages (United Nations, 2022). In 2019, the United States government provided \$333.7 million for five years for indigenous language revitalisation. A number of countries have formulated national language policies which have incorporated the use of minority and indigenous languages in their school curricula, radio and television, and in official public life, including New Zealand, Wales, Canada and some Scandinavian nations. But despite these pledges, the situation of language loss has not abated. Despite many initiatives being well resourced, policy intent and funding practice continues to be far apart, and even the most well-funded revitalisation programmes are subject to structural limitations stemming from the social and economic underpinning of the marginalisation of speaking communities.

This crisis needs to be placed in its historical context. Most of the endangered languages of the world are endangered not because their speakers decided to drop them, but because the colonial and post-colonial policies were actively against them. In Canada, Australia, and the U.S., residential schools actively took children away from their home communities and sanctioned them for their home languages. In many African and Asian countries, post-colonial governments eliminated native languages from the structures of government and public life, making the languages of the former colonizers the languages of government and education. They don't take place in the past. They are a legacy of the language attitudes, education systems, and politics of today and any evaluation of language revitalisation should recognize them as a context within which all revitalisation efforts take place.

5. Community-Based Revitalisation: Conditions for Success

Over a number of decades of empirical work, these conditions have coalesced in the scholarly literature on language revitalisation as a set of conditions that separate successful from unsuccessful revitalisation efforts. They are not just a set of facts to tick off but a web of social, political, educational and attitudinal forces which need to be appreciated in their particular historical and community context.

The one consistent issue that emerges from the literature is the irreducibly basic importance of language transmission from one generation to the next within the home and community. Fishman's (1991) concern that nothing can replace parents speaking a language to their children is a very well-founded one that remains relevant today. One of the most researched examples in the world – New Zealand's revitalisation of Maori – is used to demonstrate the strength and the constraints of this understanding. The *kohanga reo* (language nest) movement, which started in the early 1980s, established 'language nests' for young children that were immersed in the Maori language, and is widely recognised for the turnaround in the number of child speakers. However, further studies conducted have demonstrated that

children who participate in language nests but return to predominantly English-speaking homes will not necessarily keep up their Maori language into adulthood, thus highlighting the need for home language support as well as provision in schools (Sallabank and Austin, 2023). However, there is a partial contrast in the case of Wales: Welsh continues to strengthen and in some age cohorts even expand in Wales, where there has been committed investment in Welsh-medium education by the government and a Welsh language television channel (S4C), alongside positive language attitudes in the wider Welsh-speaking community (Beaton et al., 2023).

The question of intergenerational transmission is closely related to the role of community agency in revitalisation, but is treated separately. The most effective language revitalisation programmes are those in which the community itself sets the agenda, determines how to implement the programmes, the pace at which they will be implemented, and even the ownership of the programmes, instead of these being set by external researchers, governments, or technology developers, as asserted by Meighan (2021). This argument is supported through comparative evidence in a number of case studies. Communities that have had the opportunity to plan their own language programmes, establish their own language documentation archives, and have an authority to decide which domains of life to prioritise for revitalisation tend to perform better than those communities whose revitalisation is predominantly led by outside stakeholders, whether they are well-intentioned and well-resourced. The example that is presented here is from Chew's (2021) study on the revitalisation of indigenous languages on social media during the Covid-19 pandemic. Many indigenous language programmes quickly moved their programmes online during the pandemic, setting up YouTube channels, Instagram accounts, and social media challenges to keep language learning going during COVID. Communities that did this best had previously established relationships of trust between speakers, organisers, and learners, and shared goals that were clearly expressed. The communities that were most successful in this transition already had a certain degree of internal leadership, clear common goals, and existing relationships of trust between speakers, organisers, and learners. These conditions were not technology-driven but were a result of the existing community capacity.

The attitudes of the speakers and language ideology also significantly impact revitalisation outcomes. Studies have repeatedly demonstrated that communities that have a sense of pride in their language and communities in which the dominant society is respectful and recognises the minority language are more likely to achieve success than communities that have internalised stigma about their language or a hostile or indifferent attitude on the part of the dominant language community (Woolard, 1998; Fayzrakhmanova, 2025). This discovery has implications for language policy that are immediate. Schools where minority languages are not taught convey a powerful message of the relative value of those languages. Media systems that are used to signal backwardness in the rural context and/or ethnic particularism rather than sophisticated instruments of modern life contribute to negative attitudes among prospective speakers of minority languages. Reversing these ideology patterns is as significant a programme as any single language programme and much more difficult to do, because to reverse the institutional structures is not enough; to change the attitudes of millions of individual speakers, parents and community members is equally important.

6. Digital and Social Media Tools: Opportunities and New Spaces

The new possibilities given by digital technology and social media are real possibilities for endangered language revitalisation which were not available a generation ago. The Internet, and especially social media platforms, have three structural features that are hard to achieve in other revitalisation strategies: reach, visibility, and connecting distant language speakers. These are no insignificant advantages, especially for small languages whose speakers are spread out in several countries, or in urban centres distant from their native lands.

What's available online and in people's local languages now is quite conclusive and allows us to see a few patterns. In their study of indigenous language communities on Twitter, Molnar and Chartrand (2021) discovered that social media overturns the stigma sometimes faced by users of minority languages when they are in F2F contexts. Speakers can use their language online in a public and visible manner without the social stigma associated with being marked out in the real world. The study revealed that Twitter was a tool used to develop communities of practice (CoPs) of language-oriented users, share vocabulary, and provide metalinguistic comments about their languages, which strengthened their positive attitude toward language. But the same study suggests that spontaneous use of native tongues on Twitter keeps being negligible – most of the language content is after all translation of English-language information, not indigenous-language discourse. This finding, that digital visibility does not automatically translate into genuine communicative use, is one of the most important cautionary notes in the literature.

TikTok has emerged in recent years as a particularly productive platform for indigenous language revitalisation, especially among younger speakers. The platform's short video format, algorithmic discoverability, and strong culture of participatory challenge content have made it well suited for vocabulary sharing, pronunciation demonstration, and what might be called informal language teaching through entertainment. Research on TikTok and indigenous language use in Nigeria, Canada, and New Zealand documents communities using the platform to reach young people who are unlikely to attend formal language classes but who will watch a thirty-second video of an elder teaching a traditional expression or a young person demonstrating how to count in their heritage language (Nwafor, 2025; Cyca, 2024). The #KeepOurLanguagesStrong movement, analysed by Chew (2021), demonstrated during the COVID-19 pandemic how a social media hashtag could organise a decentralised, community-led language promotion effort across multiple platforms simultaneously, generating thousands of posts from speakers, learners, and supporters. These are genuine innovations in the social organisation of language revitalisation that merit serious scholarly attention.

Beyond social media, a range of other digital tools has been developed for endangered language support. Mobile applications for vocabulary learning, digital dictionaries, online language learning platforms, and computational tools for language documentation have all been developed for various endangered languages over the past decade. The literature on these tools is less voluminous than the social media literature but is largely the same: digital tools can go a long way toward increasing access to language learning resources, especially for those in diaspora communities and urban language speakers who do not have access to in-person language programmes (Technology and Language Revitalization in Indonesia, 2024; Tan and Jehom, 2024). Daigneault & Anderson (2023) record the Living Dictionaries platform which provides a model for creating digital tools that focus on community agency and not just technological efficiency, and which enables endangered language communities to create and uphold their own online dictionary, with community-controlled content. The platform's design philosophy, which puts the community as the expert and the technology as the tool, is mentioned in the literature as a best practice that can be used in other contexts.

Computational language and natural language processing are important fields of study for indigenous language revitalisation. In the review of NLP tools for language support and documentation, Mager et al. (2023) argue that NLP tools such as automatic speech recognition, machine translation, and text-to-speech systems can offer meaningful support to language documentation and learning, especially for small populations of speakers of indigenous languages for whom human resources are scarce and documentation is urgent. They also point out various obstacles: standard machine learning techniques are not applicable to critically endangered languages because they have relatively few speakers (and thus, few texts); most NLP techniques require access to large amounts of training data. Community engagement with

data collection and validation is critical, but time-consuming. Several linguistic communities have expressed concerns about their community's linguistic data being commercialised without their consent or compensation once digitised by commercial AI systems.

7. Limitations of Digital Approaches

It is understandable that digital technology has been met with enthusiasm by those that are interested in the revitalisation of endangered languages. The idea of being able to reach millions of people in a single night and link communities that are spread out across the world is very attractive after several decades of observing the deterioration of languages even after the documentation and education efforts. In contrast, there is a body of sociolinguistic research that has highlighted the structural constraints of digital methods that require facing directly if digital is to avoid wasting resources on tools which generate visibility but not sustaining languages.

The most basic constraint, as well as the one Fishman (1991) observed and all the research that followed since then has confirmed, is that the face-to-face transmission from one generation to the next, within the home, is the irreplaceable basis of language vitality. No digital tool, however well designed, can substitute for a parent speaking a language to a child. Social media, apps for words, and online dictionaries can be used to reinforce and augment intergenerational transmission, but cannot do it in place of. The research literature on the revitalisation of Welsh, Maori, and Hawaiian consistently demonstrates that it has been at least the long-term, sustained, and collective reorientation of home language use within a community that has led to genuine revitalisation, rather than digital innovation. This is particularly true when Sami and Scottish Gaelic revitalisation are compared by Beaton et al. (2023), who highlight that both languages have seen benefits from social media and digital media, but that variations in vitality can be attributed more to differences in the educational policy environment than to digital presence.

A second major constraint is the discrimination against minority languages in algorithms. Social media is built by business logic to increase engagement, and engagement is driven mainly by the speaking population of dominant languages. In other words, algorithms are more likely to boost the visibility of content in English, Spanish, Mandarin, and other predominant languages, and diminish minority language (non-speech) content, even when it is specifically identified as such. Low, McNeill, and Day (2022) call this digital language discrimination, one that is structurally entrenched in the business models of the dominant platforms, which may be less amenable to individual or community-level interventions than other revitalisation issues. Moreover, the autocorrect, predictive text, and spell-check capabilities of a word processor or smartphone are almost entirely language-driven and actively punish the user for using a minority language, pointing to errors for correct minority language forms and correcting them to the dominant language's form. This is what Zaug, Hossain, and Molloy (2022) term as digitally disadvantaged languages, or varieties that are systematically disadvantaged in the process of using them digitally through the technical design of the tools they turn to.

The third serious drawback is perhaps most worrisome for the future. With the majority of language technology now constructed around large language models, Wiechete, Flammie, and others warn that, in this context, the majority of the digitized indigenous language text on the internet could be created by AI tools rather than by humans. If this occurs, the authentic linguistic information that future researchers and members of the community can access may be polluted by AI-generated pseudo-language that may resemble the minority language, but doesn't capture its actual usage, grammatical structure, or cultural understanding. This is not a hypothetical risk. As large language models become capable of producing text in minority languages of sufficient quality to pass casual inspection, the incentive for technology companies to generate such text to fill data gaps in their training sets is real and present. The

community-controlled data ownership principles advocated by researchers working on indigenous data sovereignty are essential safeguards against this risk, but they are not yet widely implemented.

A fourth limitation concerns the unequal distribution of the benefits of digital revitalisation tools. Access to smartphones, reliable internet connections, and digital literacy skills is itself unequally distributed, often along lines that overlap with the socioeconomic marginalisation of endangered language communities. Research in Africa, South Asia, and parts of the Americas documents that the speakers most in need of revitalisation support, elderly speakers who carry the most complete knowledge of the language, are often the least likely to have digital access or digital skills, while younger speakers who do have digital access may be the least connected to the traditional language community. This creates a digital divide within already endangered language communities that digital tools, if deployed without attention to these inequalities, are as likely to deepen as to bridge.

8. Discussion

When taken together, the four themes examined in this study create a picture that is neither as gloomy as it could be nor as naive as it could be, but is carefully conditional. Languages are NOT extinct. This is seen in the cases of Hebrew, Welsh and to a great extent, Maori. Digital technology can play a significant role in revitalisation. In a way, social media have invented a new arena for language visibility, community and intergenerational contact, where none really existed a generation ago. However, a revival, in general, or digital technology in particular, is not enough. The literature makes it clear that a number of conditions must align for success: community agency, intergenerational transmission in the home, supportive language policy, positive language ideology, and institutional recognition, with digital tools best positioned to reinforce existing community capacity, and not to replace it.

The comparison of community-based and digitally mediated approaches is particularly revealing. Together, the Welsh case (which shows that sustained educational policy and institutional support can lead to genuine language stabilisation) and the Maori case (which highlights the importance of the balance between institutional support and community-led language agency and the need for careful, context-specific design of language nests) shows that no single intervention is enough, and that the balance is delicate between institutional support and community-led agency. The social media evidence that was looked at in Theme 3 also demonstrates that the presence of digital activity is more visible than active communication, and more passive observers than active contributors. But, it is not saying that digital engagement is of no value. Learning fifty words from a TikTok-following heritage language-oriented account is better for a young person's connection to the language than not following the account or learning the 50 words elsewhere. However, 50 words do not make a speaker, and likes do not make a language community.

There are additional aspects that are not sufficiently recognized in the current literature due to the limitations identified in Theme 4. While most language revitalisation researchers have not yet fully considered the contamination of authentic indigenous language data online, it is one of the most structurally serious threats facing the field of L2. When the internet is flooded with pseudo-language generated by AI, then the digital archives and corpora that have been created by audiences and researchers lose their authenticity as sources of language data. This is a pressing issue that must be addressed by both linguists and technologists and communities, and is one example of the argument that digital technology does not have a neutral role. It's not something that can be implemented uncritically as a "solution" but needs to be engaged and strategically developed.

This review fits into three international frameworks of action. SDG 4 (Quality Education) is involved because access to quality education in one's own language is a fundamental right, which is denied to speakers of marginalised and endangered languages in most of the world

(United Nations, 2015). Language endangerment itself is a form of inequality, a form of historical injustice and still one of the current social and economic inequalities that systematically disadvantages minority communities, SDG 10 (Reduced Inequalities) is implicated (United Nations, 2015). This review highlights the type of community-centred, policy-supported and informed revitalisation work that is explicitly mandated by the UN International Decade of Indigenous Languages (2022-2032) (United Nations, 2022).

9. Conclusion

This review has investigated 45 studies on endangered language revitalisation published from 2014 to 2025, organized into four themes: the scale and urgency of language endangerment globally, community-based revitalisation and its "conditions for success", digital and social media tools and the new spaces they create, and the limitations of digital approaches. This central thesis, which was developed early and substantiated by the evidence, is that in every case digital technology is not a sure-fire solution for endangered languages. It is only as effective as the community's agency, its cultural adaptation, continued policy support and whether the technology truly benefits the speakers or is a drain on them.

The evidence gives rise to four main findings. The current situation of language endangerment on the global level is so massive and its history of colonialism and enforced assimilation demands immediate, concerted, and well-resourced community, national, and international action. Positive outcomes are most consistent when community-based revitalisation is grounded in speaker agency, in the intergenerational transmission of home, and in a policies environment that fosters it. New opportunities for endangered language visibility and community and dispersed speaker connection have been created by digital and social media tools, including TikTok and other video platforms, particularly for reaching younger generations. But digital tools also introduce serious structural risks, including algorithmic discrimination against minority languages, the contamination of authentic language data by AI systems, and the deepening of existing digital inequalities within already marginalised communities.

The results of these studies have practical consequences both for the research community and policy makers and technology developers. For researchers, the priority is to develop more theoretically grounded approaches to the digital dimension of language revitalisation, moving beyond descriptive accounts of platform use toward analysis of the structural and ideological forces that shape what is possible in digital spaces. The challenge for policy makers is to understand that the key to real success in revitalisation is continuing educational, institutional and economic support, not the provision of visibility alone in the digital world. Technology developers should focus on building tools that empower communities to assume greater control over their design and operation, should apply principles of indigenous data sovereignty to ensure that indigenous communities own their linguistic data, and should consider the threat that AI poses to endangered language archives of their integrity. Looking forward, future research should include longitudinal research on digital engagement and real language use, comparative study of revitalisation outcomes in different policy contexts, and community controlled digital infrastructure using a speaker-centred, non-commercial approach. The world's endangered languages represent an irreplaceable part of human cultural and cognitive diversity. They deserve both our urgent attention and our most careful, and community-centred efforts.

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