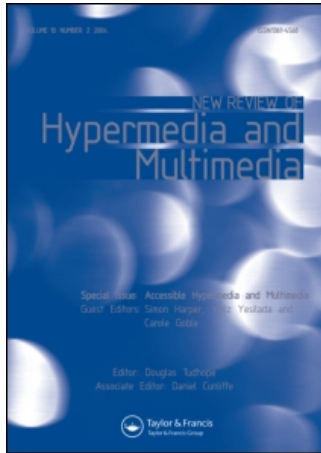


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# Introduction to Minority Languages, Multimedia and the Web

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## 1. Introduction

“The circumstances that have led to the present language mortality ... [include] ... electronic media bombardment, especially television, an incalculably lethal new weapon (which I have called ‘cultural nerve gas’)” Krauss, 1992, p. 6.

“An endangered language will progress if its speakers can make use of electronic technology” Crystal, 2000, p. 141.

The relationship between minority languages and communications technology in the broadest sense has always been complex and problematic. On the one hand communication technology can be a powerful force for propagating a majority language and its cultural values; on the other hand it can provide vital new opportunities for media production and consumption in minority languages. Many minority language communities have considered a presence in media such as radio, television, and now the Internet to be desirable or even essential. However, as with earlier technologies, the actual effects of the Internet, and of computer technologies in general, on minority languages vary from situation to situation – the views presented in the quotations above are not mutually exclusive. In order to have an informed debate and to understand the potential implications of the technological and policy decisions that are being made, research on contemporary minority languages is needed.

A concept that is often invoked when discussing issues of marginalisation in information technology is the digital divide. Typically this is couched in terms of economic or educational barriers, or issues of physical access to the technology. While these aspects of the digital divide have obvious relevance for many minority language communities, other aspects should not be ignored. One that is particularly relevant is the divide between languages that are ‘information rich’ and languages that are ‘information poor’ with regard

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to online content and services. Where content in the local language does not exist, there may be increased use of English (or the majority language of the region) by non-native speakers in both consumption (e.g. reading web sites) and production (e.g. email), thereby contributing to language shift (Kelly Holmes, 2004). Digital divides may also exist within minority language communities. There is some evidence that in certain minority language communities, web site production is dominated by young, educated males, or is activist-led rather than responding to community need (UNESCO, 2004).

Even when minority language content is available on the Internet, the software used to create and access that content is often in English or the regional majority language, implicitly reinforcing the dominant status of those languages, both in the domain of information technology, and in general. Although many minority language communities only have access to older technologies, which are typically less able to support their languages, users often do not wait for the development of technology capable of supporting their language or for technology that does support their language to become affordable. Instead, they adapt their language and communication practices to suit the available technology. The *romanisation* of a number of languages has been reported (Danet and Herring, 2003, forthcoming), for example in email and chat in Egyptian Arabic (Warschauer *et al.* 2002). Users of languages written in non-roman scripts (or not previously written at all) have developed unofficial phonetic representations of their language using standard roman characters, sometimes supplemented by numerical or other characters, thereby allowing them to use older (text-based, ASCII) technology that does not support their language in its native form.

Such solutions, while unsatisfactory in certain respects, enable people to overcome the technical barriers to using their language online. However, when minority language communities have appropriate tools to create content, the possibilities expand beyond simply consuming Internet content or communicating through email and chat: Minority speakers can increase their languages' online presence with content that is aligned to their communities' needs and aspirations.

One of the themes in this special issue is "... empowerment rather than gifting." (Nichols *et al.*, this issue). The notion that the community must 'own' the application or technology is particularly crucial when considering issues of linguistic and cultural integrity. According to this view, minority language communities should not be viewed simply as underprivileged or as passive recipients of technology; they have the potential to be active shapers of this technology, able to create their own tools, adapt existing tools to the local needs and create culturally authentic, indigenous content. Thus it is no longer sufficient to think in terms of design *for* a community or design *with* a community; rather design *by* the community should be the model (cf. Bentson, 1989). Such a model has significant ramifications: New relationships would need to be forged between the communities themselves and government agencies, commercial organisations, not-for-profit organisation, volunteers, educational establishments and others.

## 2. Special issue papers

It is indicative of the complexity and sensitivity surrounding minority languages that even the decision as to what term to use to describe them has been problematic. Aside from 'minority', a plethora of terms have been used, each with slightly different connotations: 'lesser-used', 'disadvantaged', 'threatened', 'endangered', 'indigenous', 'heritage', 'local', 'non-state', and so on. In addition to the decision of what term should be used, there is the related issue of how it is defined, including questions such as whether minority status should be judged on a regional basis (and if so what constitutes a region?) or on the basis of numbers of speakers (Grimes, 1986). Should the Internet (or more generally the electronic space accessed by information technology) be considered a region in its own right, so that a language could be a minority language in the online world even though it may not be in the real world?

The approach taken in this special issue is an eclectic one, attempting to embody as broad a definition as possible in order to include all the above possibilities, with 'minority language' used as a convenient label rather than intended to represent adherence to a particular school of thought. Accordingly, we have articles that refer to a wide range of languages, including Maori, Georgian, Hawaiian, Welsh, Chiricahua, Uzbek, and a number of African languages including Bemba, Yoruba, isiXhosa and North Sotho. While some of these have official status and some are spoken by large numbers of people, all face some degree of threat. Another common characteristic of the included languages is that they are autochthonous; surprisingly, no papers focusing on immigrant language communities were received. In countries where there is significant movement towards the e-delivery of services and information, access barriers due to language may serve to further disadvantage immigrant communities that are already marginalised (e.g. Cheong and Wilkin, 2003). The Internet also provides new opportunities for diasporic communities to maintain cultural and linguistic links with their place of origin (e.g. Williams, 2002).

In bringing together the articles for this special issue, we made no assumptions about the role that multimedia and the web might play with regard to minority languages. Information technology could be used to archive a language for potential revival or for historical interest; to increase numbers of speakers; to provide new opportunities for language use; to add new domains, or to add prestige to a language. The articles cover a range of technologies and topics that will be familiar to NRHM readers—digital libraries, online communities, computer-based learning, browsing and searching on the web—but from the particular perspective of minority language communities. Those who believe in language as a living, functional tool, rather than a cultural curio, may be encouraged to learn that none of the papers submitted to the special issue concerned themselves with language archiving. All the articles celebrate the use of living languages in new contexts. This should not be taken to imply that multimedia and the Internet do not have an important role to play in archival activities, however, or to

understate the importance of archival activities for many revitalisation efforts (e.g. Hinton, 2001).

*Digital libraries and minority languages* (Nichols, Witten, Keegan, Bainbridge and Dewsnip) describes the Greenstone digital library open source software suite for building and distributing digital library collections. A major motivation behind the Greenstone project is the distribution of the *capacity to create collections* rather than collections themselves, allowing indigenous peoples to have an active role in the preservation and dissemination of their own culture. Greenstone has been localised into a wide variety of minority and majority languages; examples in the article are given for Georgian, Hawaiian, and Maori. The article also reports on the actual usage and language behaviours of users of the Niupepa — a Maori digital library implemented in Greenstone. These examples show the power of localization to support minority language content with specialized interfaces.

Barriers to online minority language use are discussed in *Promoting minority language use in a bilingual online community* (Cunliffe and Harries). Pen i Ben, the Web-based community studied, was intended to promote minority language use by Welsh/English bilinguals and allow them to communicate in their language of choice. The language behaviour of these bilinguals was studied through their postings to asynchronous discussion forums on the community site, with differences being observed in the functional use of each language. The observations suggest a dwindling Welsh use within the community. The authors make suggestions for improving online bilingual communities, including a possible role for machine translation.

*Immersion multimedia for adult Chiricahua language learners* (Kalish) describes a CD-ROM application designed to facilitate Chiricahua word acquisition. Drawing on neurobiology and the psychology of language learning, Kalish articulates an immersive approach that avoids the need for a "bridging language" between the first and the target language. An experimental study was conducted with adult Mescalero Indians in New Mexico to examine the effectiveness of the approach. These results suggest that simultaneous presentation of sounds, images, and graphemes facilitates word acquisition and thus has a useful role to play in the revitalisation of minority languages. The article also highlights the importance ascribed by tribal peoples to acquiring cultural knowledge as part of language learning.

*Resistance to globalization: Language and Internet diffusion patterns in Uzbekistan* (Wei and Kolko) examines the role of the Internet as a tool for cultural expression and resistance to globalisation. The article questions the vision of the Internet as a utopian space where everyone has an equal voice. While Uzbek is not a minority language in Uzbekistan and has official status as the state language, it faces pressure from both Russian and English. The results of a survey investigating views towards language and Internet behaviour reveal some of the complexity and "subtle resistance activities" relating to linguistic expressions of national identities. The Uzbek language online appears to be at a critical juncture, with Uzbek speakers making little

use of the language on the web. Charting the evolution of online language spaces and the factors influencing their development is a complex task, but it may provide useful lessons for other language communities.

*Language sensitive search behaviour and the role of domain knowledge* (Kralisch and Berendt) does not focus on a particular minority language but rather addresses an issue that is familiar to many minority language speakers – accessing online information in a non-native language. The article presents the results from two studies of a large international e-health website, examining users' search behaviour and its relationship to language. The study finds that users have greater difficulty accessing content that is not in their native language and that there is a significant effect of domain knowledge in mitigating a lack of language ability. These results provide insights that can be used to design interfaces that better support people using the Web in their non-native language.

The technical note, *Review of script displays of African languages by current software* (Gee), provides an overview of African language software and some of the challenges faced in its development. While many African languages have large numbers of speakers, their online presence is often limited. This article identifies the need to allow speakers to take ownership of materials and produce them. The potential role for voluntary effort and academic institutions in the development of software aimed at small markets is also discussed, at the same time recognising that more immediate needs at both individual and national levels might mitigate against the development and use of such software.

### 3. Future directions

The articles in this special issue give an enlightening, albeit limited, taste of the variety of challenges faced by different minority language communities, and the diversity of work being undertaken in this area by researchers and designers of new media. They also make the case that specific issues and concerns mark out minority language computing as a distinct area of scholarship (though one with rather fuzzy borders), one that is almost by definition multidisciplinary.

At the same time, as is inevitable in a collection of studies from an emerging domain, a number of important issues have barely been considered. Many of these are at a more general level than those addressed in the present articles. A non-exhaustive set of issues in need of further research might include:

- How does interface design influence language behaviour, e.g. how can design be used to promote minority language use in bilingual contexts, or to better support users accessing content in their non-native language?
- What are the costs and benefits of technology compared with other revitalisation methods, and how do open source and indigenous production influence these factors?

- How should the impact (whether positive or negative) of technology on minority language use be measured and quantified?
- Should technology be included as a factor in existing typologies of 'threatened' language status (e.g. Fishman, 1991) and if so, how?
- Where does technology fit into language planning; what factors are indicative of an appropriate role existing for technology?
- What are the benefits and drawbacks of a bottom-up approach (citizen led) as opposed to a top down approach (government led)?
- What is the relationship between real world language use and online language use, both in terms of consumption and production?
- To what extent are the problems faced by languages that have large numbers of speakers but are minorities in online contexts similar to and different from those faced by 'traditional' minority languages?
- More broadly, how can the linguistic dimensions of the digital divide be measured and how can its significance be assessed?
- How do the other dimensions of the digital divide, such as poverty and education, influence the decision of how (or whether) to use technology for a particular minority language community?

Many thanks are due to those people without whom this special issue would not have been possible – all the authors who submitted papers, the numerous people who served as reviewers, and the Editors and publishers. While this special issue arguably raises more questions than it answers, it should be seen as part of an ongoing process. We are hopeful that the expertise of researchers, practitioners and minority language communities can together make a genuine contribution to the preservation and celebration of the world's linguistic diversity.

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