International Journal of Design Sciences & Technology

Volume 25
N°2

2023

ISSN 1630 - 7267

International Journal of Design Sciences and Technology
Design Sciences, Advanced Technologies and Design Innovations
Towards a better, stronger and sustainable built environment

ISSN 1630 - 7267

15, avenue de Ségur,
75007 Paris, France.
Tel (Fr) 01 45 51 26 07 - (Int.) +33 1 45 51 26 07
Fax (Fr) 01 45 51 26 32- (Int.) +33 1 45 51 26 32
E-mail: ijdst@europia.org
http://www.europia.org/ijdst

International Journal of

Design Sciences and Technology

Volume 25
N° 2

ISSN 1630 - 7267

International Journal of Design Sciences and Technology
Design Sciences, Advanced Technologies and Design Innovations
Towards a better, stronger and sustainable built environment

Minority Languages on the Web: Digital Literacy in Indigenous Communities

Cécile-Marie Martin[1]
[1] Université des Antilles, cecilemartin.prof@gmail.com

In spite of the declarations of proponents of a Web understood as a global space, governed by laws aiming to ensure universal access, the question of the representativeness of linguistic minorities remains eminently political. From there, it is legitimate to ask to what extent the Web can be a place for indigenous communities expressing themselves through minority languages. In order to question the presence of minority languages on the Web, this paper will focus on different projects developed by or with indigenous communities. Through these examples, the possibilities of mutualisation and the transferability of these innovations will be discussed.

Keywords: linguistic minorities, indigenous communities, digital tools.

1. Introduction

Since its creation, statements to guarantee a global access for all people to the Web have been prolific. However, the concretization of this project involves a struggle to maintain this tool for expression available. The complexity of the Web which comprises a multiplicity of levels [3] must be taken into account so as to identify entry barrier. Among the list of elements strengthening digital divide, it is clear that the origin of languages used not only for creation of content but also for searching and browsing and to engage with each other online is in the front line.

Indeed, in spite of the declarations of proponents of a Web understood as a global space, governed by laws aiming to ensure universal access [2], the question of the representativeness of linguistic minorities remains eminently political [17]. From there, we will ask ourselves to what extent the Web can be a place for indigenous communities expressing themselves through minority languages while the management of this global system is ensured by actors using English for the most part to publish (57.7% of the contents in January 2023, source W3Techs) or to program (the 50 most used languages in January 2023 are English-based syntaxes, source TIOBE ranking).

In order to question the presence of minory languages on the Web, we will focus on different projects developed by or with indigenous communities. In this paper we will present different examples of populations targeted by our analysis, such as the Warumungu community in Australia, the Wayana and Apalai communities in French Guyana, the Maori community in New Zealand. A more general example, through the figure of the keyboard, will allow us to discuss the possibilities of mutualisation and the transferability of these innovations.

Some of the main elements which participate to the communication processes and support the presence of the minorities on the Web, such as graphical user interface, interface language, digital lexicon and character set will be used as a framework to discuss the place taken by languages in the activities of the indigenous communities on the Web, including the management of access and the conditions of use. If for some, the Web

consecrates the idea of a global village [14] or even of a medium to support the cultural globalization process [18], in the sense of a place of expression freed from national borders, in reality the disruptive character of this territory can be relativized. Many elements are indeed intrinsically linked to the state apparatus, like domain names, email addresses or network access modalities, and of course the national official languages. However, in this paper we will show that digital literacy, [9, 12] can be a lever to promote the development of initiatives by and for indigenous minorities.

2. Mukurtu, a Content Management System Designed with and for Indigenous People (Australia)

The Mukurtu Content Management System (CMS) resulted from a collaboration between the Warumungu Aboriginal community and researcher Kimberley Christen [6]. The team's objective was to develop a solution for administering the community's digitized heritage, a solution that had to be aligned with the Warumungu culture. Indeed, in the classic approach to website design, navigation is planned in such a way as to simplify access to content. The view taken in mainstream cultures is that the speed with which the user can find a resource is a guarantee of quality. But priorities are different in the Warumungu culture. To access content the user must previously be identified by gender, age and relationship to the community: are they a member of the community or not? what place do they occupy within it? Access is conditional upon a number of parameters, some relating to the visitor's identity and others being external factors such as the time of year or geographical location.

The Mukurtu CMS was therefore designed to meet specific needs, and the team achieved the feat of coordinating the response to these needs through integration into the Web system, while also enabling a variant of the tool and facilitating its reappropriation by other communities. The website design work has been analyzed from both a technical and a cultural point of view. The CMS architecture has been designed for an optimal articulation of these three levels: database, administrator-controller interface, visitor interface.

One function thus allows the administrator to manage access rights by applying filters by content or for a selection of content, for a given period, and reversibly. It is also possible to use the same basis to develop various websites, private or public pages. Attention has been paid to ensuring content integrity, in the event of this content being exploited by third parties (simplified addition of metadata). Particular care has been taken over the question of appropriation of the tool, but also the question of autonomy and digital literacy. The software part is copyright-free but training is offered to learn how to use it. The development of this website creation tool was an opportunity to take a fresh look at some ideologies at work in the principles of website design.

These are in fact developed to serve two objectives: the sharing but also the protection of resources that often, as soon as they are published on the Web, become common property. However, this ideology of open access, championed by the Web pioneers in order to oppose it being turned into a commodity or privatized, may in some cases amount to a form of domination over the cultural heritage of indigenous minorities. The World Heritage of Humanity and the public domain are amalgamated and hailed as progress, a goal to be achieved for all humanity, while part of humanity has not been consulted on whether it intends to endorse it [15].

3. WATAU, a Portal Made with and for Wayana and Apalaï (French Guyana)

As part of the project SAWA (Savoirs Autochtones Wayana-Apalaï / Wayana-Apalaï Indigenous Knowledge), the Wayana and Apalaï have been involved in the creation of WATAU, a portal dedicated to their communities and their younger people. By showing old objects and photographs, and by listening to the recordings collected by members of the communities, researchers, and visitors, WATAU aims to offer a way to preserve and transmit their skills and culture.

Anchored in a process of self-determination and identity affirmation, SAWA was a collaborative project bringing together representatives of Amerindian experts and researchers, museum curators and research engineers. It was held between 2016 and 2020. Dedicated to the Wayana and Apalai populations, its main objective was to enhance and facilitate access to a set of recordings, audiovisual and photographic collections

as well as collections of objects representative of their culture. The project was accompanied by a reflection on the practices of restitution and their impact on the transmission of traditional knowledge, as well as on the modalities of appropriation of new tools and technologies of mediation in the indigenous communities.

Its originality lies in giving a central role to the indigenous communities by creating the conditions for the active participation of a Wayana-Apalai team. Not only were they involved in the choice of content, but above all they participated in the graphic choices and layout of the site. Thus, WATAU has been designed as a multilingual portal with forms and conditions of access defined primarily by the Amerindian participants in their own languages.

Finally, the project's approach is an exemplary of digital literacy, as workshops supervised by an ethnolinguist made it possible to translate the digital lexicon into their language [4].

4. Emotikis, a Selection of Emojis Made by a Maori Institution for the Maori Community (New Zealand)

Playing an important role in digital communication – including email and text messaging - emojis are a powerful tool for technological inclusivity. Then, over the years, voices were raised to denounce the lack of diversity, such in skin tones or sexual orientation. These criticisms have led to the development of new pictograms. To overcome the limitations of a self-centred Western system, some communities of users have also set up other ways to express their cultural specificities. Strategies for appropriating imposed character sets have been highlighted since the 1980s, as is the case for China [20].

More recently, in 2016, people from the Te Puia Māori cultural center in New Zealand have undertaken another approach. They have embarked in a creative process. Indeed, Te Puia team designed more than 150 emojis that they have called Emotikis. These include traditional objects from Māori culture like canoes, traditional weapons and a set of tikis, colored like Pounamu rocks, making a large range of faces. The set even includes a number of animated emoji gifs.

But while these Māori emojis may be designed for fun, the General manager of the cultural center, Kiri Atkinson-Crean, reminds us that “they give Māori youth a way to engage with each other online using signifiers from their own culture” [13].

5. Keyboards, Hardware and Software Innovations Dedicated to Minority Languages

As mentioned above, English is the main language used to publish and to program. This is a direct consequence of its status of working language, used for the development of the Web. And if necessary, English carved out for itself this leading position in the Web environment, also conditioned by its main input tool, the keyboard. As a matter of fact, the configuration of computer keyboards was not originally based on intrinsic qualities but on an accumulation of learning and networking effects [8]. But for a long time no cultural adaptation was made for this device, there was a complete lack of cultural inclusion strategy. Indeed, it was not until the 1980s that researchers and industrialists began to pay attention to “linguistic balance in the digital world” [1]. Nowadays, in an attempt to remedy the widespread use of English as an input language, a number of solutions exist. For several years, customizable keyboards have been marketed, such as the Nemeio, offered by the company LDLC from 2020 on. E Ink screens allow each key of this keyboard to be reversibly customized.

This leaves the question of the number of keys, which can be limiting for some alphabets. To address this problem, the widespread use of touch screens with the adoption of smartphones and tablets could have led manufacturers to simply offer software customization of keyboards. But most of the time, it is the app providers who offer their own built-in keyboard interface.

If we add the restricted size of the smartphone screen, it explains why Arabic-speaking or Chinese-speaking communities have developed cultural poaching techniques [5], like the creation of Franco-Arabic or Arabizi,

born from the Romanization of Arabic, mainly used for discussion on social media, or the generalization of voice messages and intuitive typing in Asiatic countries.

To address this situation, First Voices, and initiative of First People's cultural council (Canada) developped an application that includes every First Nations languages in Canada, Australia and New Zealand, plus many languages in the USA. The app is available for Apple products, like iPhones and iPads. User can choose among a selection of more than 100 languages that can be activated in any application on these devices. Keyboards of choice can be selected within different application for different functions, like email, social media, or word processing. Thus, First Voices objective is to contribute significantly to the promotion of the use of the mother tongue in online communication.

6. Conclusion

Examples of initiatives allowing indigenous minorities to establish their representativeness on the Web have served to illustrate our point and to identify the possibilities of a digital presence [16] for these communities. We have seen that most of the elements presented are community-based, but approaches and many components are transferable.

These projects show that engagement in the path of acculturation isn't necessary, but rather it demonstrate the interest of implementing an alternative form of modernity [10]. Through examples of projects dealing with the valorization of linguistic minorities on the Web, this presentation gives an overview on the importance of the development of competences in the field of mediation, communication, and training. Understood as a set of tools and practices promoting digital literacy [7], we hypothesize that digital humanities can support the development of skills to understand and use digital technologies thus promoting the reduction of the digital divide in its multicultural dimension.

By mobilizing knowledge from political sciences, information and communication sciences, education sciences and ethnolinguistic sciences, analysis of Web democratization processes in a multicultural dimension can benefit from expertise developed in the field of digital humanities.

It proves that opportunities can be offered to representatives of linguistic minority communities to develop a self-sufficient use of the Web, in a way that doesn't dilute or compromise their identity but rather enhances it.

References

[1] **Ben Henda, M.** (2014). Langues en danger et multilinguisme numérique. In A.M. Laulan, A. Lenoble-Bart (Eds.), Les oubliés de l'Internet. Cultures et langues sur l'Internet oubli ou déni ?, Les Etudes hospitalières, Bordeaux, 77-94.

[2] **Berners-Lee, T., Cailliau, R.** (1990). WorldWideWeb. Proposal for a HyperText Project. CERN.

[3] **Brondizio, E., Ostrom, E., & Young, O.** (2013). Connectivité et gouvernance des systèmes socio-écologiques multiniveaux : le rôle du capital social. Management & Avenir, 7(7), 108-140.

[4] **Camargo, É., Holguin Lew, V., Tandar S. and Équipe Wayana et Apalaï** (2020). L'Amazonie amérindienne dans l'ère du numérique : le portail multilingue WATAU, Patrimoines du Sud.

[5] **de Certeau, M.** (1990). L'Invention du quotidien. 1 : Arts de faire, Gallimard, coll. Folio Essais, Paris.

[6] **Christen, K.** (2005). Gone digital. Aboriginal remix and the Cultural commons. International Journal of Cultural property, 12(3), 315-345

[7] **Drot-Delange, B.** (2014). Littératie informatique : quels ancrages théoriques pour quels apprentissages ?. Spirale. Revue de recherches en éducation, n°53, 121-132.

[8] **Flichy, P.** (1998). Présentation. Réseaux, 16(87), 5-6.

[9] **Gilster, P.** (1998). Digital Literacy. John Wiley &Sons.

[10] **Habermas, J.** (2002). La technique et la science comme « idéologie ». Gallimard.

[11] **Le Crosnier, H., Schafer, V.** (2011). Gouvernance et neutralité de l'internet. In H. Le Crosnier & V. Schafer (Eds.), La neutralité de l'internet : Un enjeu de communication (pp. 103-133). CNRS Éditions.

[12] **Le Deuff, O.** (2012). Information, Media, and Digital Literacies: From Competition to Convergence. Études de communication, 38.

[13] **Lewis, D.** (2016, June 1st). Emotikis and New Keyboards Bring Indigenous Cultures to Text Messaging. From Maori emojis to First Nations languages. Smithsonian Magazine.

[14] **McLuhan, M.** (2004). Pour comprendre les médias. Seuil.

[15] **Martin, C.** (2018). Le système Mukurtu : une ouverture sur l'interculturel. Hermès, 3(3), 238-243.

[16] **Merzeau, L., Le Crosnier, H., Denis, V., Picard, J., Juanals, B. & Mercier, S.** (2010). Une nouvelle dimension de l'information. Documentaliste-Sciences de l'Information, 1(1), 32-41.

[17] **Vinsonneau, G.** (2012). Mondialisation et identité culturelle. De Boeck Supérieur.

[18] **Warnier, J-P.** (2017). La mondialisation de la culture. La Découverte.

[19] **Weber, M.** (1995). Economie et société. Pocket.

[20] **Yu, M.** (2021). Les spécificités des émoticônes chinoises. La linguistique, 57, 165-187.