12

Indigenous Peoples on the Internet

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Introduction

Increasingly since the mid-1990s Indigenous peoples around the world have been establishing a presence on the Internet. Nathan (2000, p. 39) notes that they were early participants and that their involvement has been "vigorous and successful."

Here the term "Indigenous" is used to refer to those who "having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing in those territories" (UNESCO, 2004). The term embraces Native Americans of the US and Latin America; First Nations, Inuit, and Métis peoples of Canada; Aboriginal people and Torres Strait Islanders in Australia; various tribal peoples throughout Asia; Indigenous minorities in Africa; and the Sami of northern Europe. In addition, the Polynesian, Melanesian, and Micronesian nations of the Pacific identify as Indigenous, even if some, like the Tongans, were never colonized and so do not strictly fit the UNESCO definition. In total, there are an estimated 350 million Indigenous people living in over 70 countries round the world, comprising 4 percent of humanity (UNESCO, 2006). They represent over 5,000 language and cultural groups.

As a result Indigenous websites and uses of the Internet are remarkably diverse. Websites include many established by Indigenous communities, Indigenous organizations, as well as individuals. Mitten (2003) and Dyson and Underwood (2006) attempt to summarize some of the major categories of Indigenous sites. Mitten (2003), who studied 120 Native American sites, describes portals, websites of tribes and Native American organizations, educational sites, Native media sites, e-commerce, music sites, and websites for promoting Native languages. She further notes that the diversity of Native American websites is such that there are almost unlimited categories in addition to those she examined. For example, there are websites for health, the military, powwows, legal issues, Native authors and artists, genealogy, Indigenous museum collections, and digital libraries of history and

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anthropology. Dyson and Underwood (2006), describing Indigenous-controlled sites around the world, list additional categories of e-government, cultural management, political activism, Native title, treaty, intercultural dialogue, reconnection and community rebuilding, youth support, and sport.

These two studies reveal a huge variety of websites. Some fulfill comparable roles to websites run by non-Indigenous people, for example the e-commerce and sport sites. In addition, Indigenous uses of the Internet often coincide with the everyday practice of non-Indigenous people, for example searching for information, downloading music and movies, and using email for their work (Gaidan, 2007). However, there are also interests of special concern to Indigenous people. These particular applications will be the focus of this chapter and include the employment of the Internet to reaffirm Indigenous identity and rebuild shattered communities, as a tool to achieve self-determination, and as a medium of communication in Indigenous languages.

Despite Indigenous peoples' active engagement with the Internet, there still remain many challenges. There have been concerns expressed by some authors over whether the Internet will act as a tool of further colonization and continue the process of Western enculturation of Indigenous peoples begun in the colonial era (McConaghy, 2000). Indigenous spokespeople have voiced dismay over the power of misrepresentation offered by the Internet (Iseke-Barnes & Danard, 2007), and the misappropriation of Indigenous knowledge and culture (Radoll, 2004). There have been questions raised regarding the ownership of many websites which purport to offer an Indigenous worldview and the likely audience for Indigenous websites when most Indigenous people remain unconnected to the Internet. Any consideration of the Indigenous presence on the Internet must be evaluated in the light of concerns such as these, given the entitlement of all peoples to maintain their cultural identity as part of their universal human rights (UNESCO, 2002). A careful examination not only of how Indigenous people are using the Internet but also how they might be negatively affected is needed.

I will begin by a consideration of the strength of the Indigenous presence on the Internet both historically and today. This will be followed by an examination of the main challenges to Indigenous participation. Finally, an analysis of four major and distinctive uses of the Internet by Indigenous people will be presented and discussed in the light of the challenges to full inclusion.

The Strength of the Indigenous Internet Presence

There are many Indigenous Internet users and many Indigenous websites, chat rooms, and online forums around the world. NativeNet was probably the first bulletin board and listserv to foster discussions about Indigenous identity and culture, established in the US in 1989–90 by Hispanic-American Gary Trujillo (Zimmerman, Zimmerman, & Bruguier, 2000). Similarly, the first Indigenous websites were initiated in the US: Paula Giese, a Native American, began publishing

on the web in 1993 and launched her Native American Indian Resources website in 1994 (Strom, 2000); while the Oneida nation inaugurated the first tribal website the same year (Polly, 1998). In 1995 the first conference paper on Indigenous self-determination using the Internet was delivered by Hawaiian cyberactivist Kekula Bray-Crawford (2000), who was also responsible in 1996 for the first real-time Internet broadcast of a UN formal session – on the draft Declaration on the Rights of Indigenous Peoples. In 1998 NativeWeb, a portal dedicated to resources and websites from and about Native American and other Indigenous people, had links to 2,000 websites (Caraveo, 1998). In 2001 Hobson (2001) counted over 400 websites in Australia alone. By 2003 in the US Anderson (2003) identified 132 tribes with their own website, that is, roughly 25 percent of all federally recognized tribes, not including sites run by other Indigenous organizations and individuals.

Entering "Indigenous people," "Aboriginal people," "Native American," or similar keywords into a search engine today will bring up millions of hits. These give some sense of the "virtual face of indigeneity," to quote a phrase from Landzelius (2006, p. 4). However, when considering the strength of the Indigenous presence on the Internet, we must also ask questions regarding the authenticity of many of these websites, given the misrepresentation of Indigenous cultures from colonial times down to the present. Authenticity may be gauged by attempting to answer two questions, "*By* whom is the site run?" and "*For* whom is it run?" If a site is not managed by Indigenous people, or at least run by others in the interests of Indigenous people, we must question whether it can truly be regarded as an Indigenous website even if it purports to deal with Indigenous topics or culture, or sells Indigenous artifacts.

For many Indigenous people, governance is the key issue. When websites are managed by or have input from Indigenous people, they tend to offer a view which is free from racist stereotyping. On the other hand, when run by non-Indigenous people, they are more likely to reflect the dominant discourse. This can happen through the commodification of Indigenous culture, the decontextualization and distancing of Indigenous knowledge from the people who created it, and by non-Indigenous people assuming control over how Indigenous people are represented. Iseke-Barnes and Danard (2007) give examples of these phenomena. They note the commodification of traditional Indigenous crafts and images on the Internet to sell products which have no connection to Indigenous culture (e.g., Indian motorcycles, and LandOLakes butter with its "Indian maiden" image), and remark on how Indigenous artisans are often completely removed from the manufacturing cycle (many of the dream catchers and moccasins for sale online are not made by Indigenous people). They also discuss issues concerning Indigenous artifacts exhibited on museum websites, where often non-Indigenous staff maintain control over how the objects are represented and as a result sometimes misinterpret them. Carlos Efraín Peréz Rojas, a Native American film-maker and video-activist from Mexico, highlights the difference between Indigenous self-representation and non-Indigenous representation:

> It's important to say that there's more than just hunger, pain and poverty in Native communities. Solutions are also being offered. . . . I've noticed that views from outside tend to show indigenous peoples as victims, the gaze is attracted to the sandals, the hungry people, the dirty child. . . . When Native people represent themselves they show more dignity. . . . Of course I talk about the problems that exist, but I will also offer a message that brings hope. (quoted in Zamorano, 2005)

The worst cases of Indigenous misrepresentation on the Internet are websites purporting to be Indigenous but actually produced by imposters, protected from exposure by the anonymity of the net. There are many "professional Indians" online exploiting Native culture for their own profit (Anderson, 2003, p. 451). One sign of a fake website is where detailed religious descriptions are provided. A famous case was a chat room called Blue Snake's Lodge in which a software consultant adopted a fraudulent persona, teaching his version of Native American healing and spirituality, and inducting visitors to the site into honorary membership of the "Evening Sky Clan." In 1993 Native Americans closed the chat room down, affirming the "sacred, proprietary – and indeed, exclusionary" nature of their religious rituals (Martin, 1995).

It is difficult to say exactly how many websites are under Indigenous control. Hobson (2001) concluded that most of the Australian sites he located were governed by non-Indigenous people: their use of the pronoun "they" showed that they were *about* rather than *by* Indigenous people. The dominance of the English language on websites offering Indigenous information and views (Niezen, 2005) might suggest that many are, indeed, in the charge of outsiders, particularly where the website originates in a non-English-speaking country. However, if we consider that the majority of Indigenous people establishing websites would be "a formally educated . . . elite with the linguistic and technological skills to use the Internet as a tool of global networking, lobbying, and self-expression" (Niezen, 2005, p. 534), and furthermore that many Indigenous people were discouraged from passing on their own language to their children through assimilatory practices, then we cannot take language as a firm indicator of authorship. Many English-language websites would be *by* Indigenous people, or at least involve collaborative efforts. One thing that is clear is that Indigenous people from certain English-speaking countries – particularly the US, Canada, Australia, and Aotearoa (New Zealand) – have been more active in establishing websites than, for example, their Spanish-speaking counterparts. Part of this is no doubt a matter of economic differences, but it is also due to the fact that in those countries Indigenous groups received a great deal of technical support from collaborators based in universities, which was rare in Latin America (Becker & Delgado-P., 1998). For example, NativeWeb, which now has a majority of Native American and First Nations people on its board of directors, received its start from hosting at universities in Kansas and New York.

Even if websites are not under Indigenous control, they can be valid expressions of indigeneity if established and maintained to further the aspirations of Indigenous people. Again, the use of English or other major European languages

is not a definitive indicator since there is usually an assumption by web designers that Indigenous people using the Internet will be able to operate in the dominant language. For example, in the African context Osborn (2006) points out that there is not a great audience at present for websites in Indigenous African languages because most Indigenous users are wealthier, educated people who are quite at home in their country's official language, usually English or French. There are many websites and webpages established around the world by governments, non-governmental organizations (NGOs), educational, and other institutions which are providing useful and necessary services for Indigenous people. Many of these focus on online services and information in the basic areas of health (e.g., Indigenous health centers, prevention of diseases common in Indigenous communities), education (Indigenous scholarships and educational programs), legal issues (Indigenous rights, land rights, and legal services), housing, family programs, employment and development schemes, and cultural heritage. Most of these may be considered authentic Indigenous uses of the Internet even if not created or controlled by the Indigenous people themselves. However, Dyson and Underwood (2006) compared a selection of these websites and concluded that probably those which were most effective in reaching Indigenous people were still those that had Indigenous involvement, either through collaborations with Indigenous communities or through Indigenous staff members employed by the organization. For example, the website of Te Papa Tongarewa, the Museum of New Zealand, is bilingual in Maori and English, with photographs of woodcarvers and weavers presenting their art as a living tradition, and offers training and collaborations with Maori organizations. Maori people have obviously been involved in the creation and ongoing maintenance of this website.

In conclusion, it is impossible to state precisely how many Indigenous websites, blogs, chat rooms, etc. there are today. Certainly no one has attempted the enormous task of evaluating and counting them all. However, we can say that the number is considerable but not as great as a search engine will appear to reveal. The cybersurfer will always need to use their judgment based on the "by whom and for whom" test, or as Métis scholar Carol Leclair states, "who" and "how useful":

> Web sites, which claim to offer native knowledge, are scrutinized through some of the basic concepts embedded in oral tradition. I check for clear statements of who is writing, identifying self, family, place, of how you come to know from your own experience, or who has passed on the information and how this person has demonstrated knowledge in the past. . . . I use my intellect and my intuition (another word for wisdom or experience) to assess the usefulness of the site. (Leclair & Warren, 2007, p. 5)

Challenges to Indigenous Participation on the Internet

Despite the strength of the Indigenous cyber presence, the Internet also poses a number of real and potential challenges. It is fair to say that some of these are

similar to barriers facing any community with low socioeconomic status and therefore living on the other side of the digital divide, lacking access to the Internet and the skills to use it effectively. Moreover, some of Indigenous peoples' fears of unethical behavior in cyberspace, such as the exposure of their children to pedophiles and pornography, coincide with those of non-Indigenous parents, even if exacerbated in this group by a certain naivety about information and communication technology (ICT) (Latu & Dyson, 2006).

However, if we are seeking to understand the distinctive features of Indigenous engagement with the Internet, we must also add the weight of historic and present-day abuse perpetrated through colonization and postcolonialism. The deep mistrust born of this experience has led some Indigenous communities and researchers to extend their suspicion to the Internet, seeing it as potentially another tool of Indigenous disempowerment.

Internet access

The most obvious challenge to Indigenous peoples' full participation on the Internet is access. Difficulties of access faced by Indigenous populations are the result of a complex of socioeconomic factors, geographical location, and language issues. In this respect, their situation is distinct from those groups who experience the digital divide for largely socioeconomic reasons, for example poorer people from the dominant ethnic groups living in Europe, the Americas, or Australasia.

Generally, poverty combined with the high cost of ICT means that Indigenous people have low computer ownership, low ICT literacy, and low connectivity to the Internet. An exacerbating factor is the remoteness of many Indigenous communities, which are often located in regions where connectivity is difficult. In remote regions, too, costs escalate: Internet connections via satellite are more expensive than standard telephone-line or cable connections in the cities, and maintenance and repair services are likewise more costly and prone to long delays because people have to be brought in from outside since there is a lack of trained Indigenous ICT technicians to provide maintenance locally (Dyson, 2005). In addition, supporting infrastructure, such as electricity, is often absent or intermittent.

Access issues are normally defined purely in terms of technology provision, but Osborn (2006) directs our attention to the linguistic dimension of the digital divide. Low literacy, particularly in English, the main computer language, does not help Indigenous people to get online (Secretariat of the UN, 2003). The multiplicity of Indigenous languages and complexities in handling their scripts offer major challenges (Osborn, 2006). Indigenous people require localized versions of browsers and search engines with displays written in their own language as well as orthographical support to type the letters and accents necessary for communication. For those who cannot read text – or cannot read well – multimedia support is necessary by way of graphical interfaces and audio files.

Access, or lack of it, is not evenly distributed across Indigenous communities. Shorter (2006) clearly illustrates the gap between two Yoeme communities, one

rich and living in a first-world country, one poor and located in a developing nation: while the Yoeme community in the US had daily access to the Internet, the Yoeme on the Mexican side of the border did not even have access at their schools, let alone in their homes. Taylor (2007), writing in the context of northern Scandinavia, points out that it is mainly urbanized Sami youth who are using the Internet, not Sami living on the land.

Successful programs to increase Internet access have generally employed technologies which are cost effective in remote regions, for example wireless and satellite networks (Cullen 2005), and access models which share costs across the community, thus improving affordability. Indigenous communities in many parts of the world have found that the way to improve Internet access and skills is via computer labs in schools and libraries as well as community technology centers (also referred to as community multimedia centers or telecenters) owned by the whole community (Daly, 2007; Meer, 2003; Hughes, 2004).

Sustainability of Indigenous websites

Poverty impacts not only on access but also on the sustainability of many Indigenous communities' websites. Money for updates is sometimes lacking, resulting in dead links and dated content (Taylor, 2007; Delgado-P., 2002).

E-commerce offers one way of funding both websites and Indigenous business. However, Salazar (2007), while quoting several e-commerce ventures in Peru, Ecuador, and Bolivia, notes that commercial uses of the Internet have so far failed to turn a profit for Indigenous entrepreneurs and community enterprises.

Misappropriation of Indigenous knowledge and culture

The Internet represents a particular challenge to Indigenous communities wishing to place traditional knowledge or culture online. There is a widespread perception by many web users that the Internet is the way of the free and there is a lack of understanding that material is covered by copyright laws. Indigenous people risk losing income from illegal downloads and risk misappropriation of cultural artifacts by their incorporation into the works or products of others without permission (Radoll, 2004). Protection by existing copyright is itself problematical, as it is usually based on notions of individual authorship and economic rights, whereas Indigenous cultural ownership is more diffuse and communally based, with rights centered on ideas of spiritual obligations and custodianship (ICIPTF, 1999).

Further, Indigenous people have concerns over who has the right to knowledge: they do not wish unauthorized members of even their own community, let alone outsiders, to gain access to knowledge that is seen as sacred or secret, viewable only by the initiated or by people of a certain gender (Dyson & Underwood, 2006). These restrictions need to be managed dynamically by Indigenous communities since restrictions are to some extent fluid and change over time. For example, Aboriginal Australians ban the naming, viewing of images, or playing

of recordings of dead people for varying periods of time after death, depending on a range of factors (Anderson, 2005). So references to the deceased need to be taken down from websites or have warnings prominently displayed.

The attitude towards placing knowledge online may well be different depending on whether Indigenous communities are situated within wealthy countries and have better access to ICT and other resources, or within the third world with few opportunities for dialogue with the outside. Shorter (2006) reported a marked distinction between the two Yoeme communities living on opposite sides of the US–Mexico border: the Mexican Yoeme were eager to have cultural tapes and documents placed on a website by a collaborating ethnographer, while the much richer US community tried to stop this.

Concerns over misappropriation of knowledge are not insuperable and a number of communities have developed approaches to managing this issue while still taking advantage of Internet technology. The Wangka Maya Pilbara Aboriginal Language Centre in Western Australia, for example, decided that access to cultural materials and language resources could best be delivered via the web, given the scattering of small communities across a wide area of the Pilbara region (Injie & Haintz, 2004). Individuals who are not able to visit head office can search lists of items online and order copies on CD-ROM. To maintain absolute security and to avoid misuse of intellectual property, items cannot be directly downloaded from the website. Online requests can be vetted so that outsiders pay for copyright material and do not gain access to culturally sensitive material or private stories.

Western enculturation

There have been concerns expressed by some commentators about the potential of the Internet to seriously impact Indigenous culture (McConaghy, 2000). These fears of the Internet as a tool for assimilating Indigenous people into Western society come from an acknowledgement that no technology is completely neutral and that all come embedded with the values of the civilization that produced them. Certainly Indigenous representatives at the first World Summit on the Information Society sponsored by the United Nations in 2003 expressed worries that Western influences brought to them on the information superhighway might overwhelm their own cultures. Some feared change and the impact on their traditional knowledge and way of life (Secretariat of the UN, 2003).

However, other researchers have discredited this idea of the Internet as a tool of assimilation (Becker & Delgado-P., 1998; Dyson, 2003). Schoenhoff is one author who notes the adaptability of the new technologies:

> The computer is a unique tool because its purpose is constantly being reinvented by its users. Its power consists in the fact that it is a symbol machine, and its symbols and their interpretations can be altered. (1993, p. 76)

Nathan (2000) sees the catalyst for Indigenous engagement with the Internet as lying in the inherent nature of the medium: the challenge it poses to standard

ideas of literacy, its interconnectivity, and the fact that it is still "soft" and can be molded by those who engage with it. The "breakout of the visual" on the Internet through graphic interfaces, photographs, animation, and video (Bolter, 2001, p. 72) has a particular appeal to the visual strengths of Indigenous users, most of whom come from cultures with strong artistic traditions. In addition, the sound files which have become increasingly available, such as online music, language recordings, and podcasts, speak to the oral cultures of Indigenous people. The active participation of Indigenous people on the Internet and the wide range of uses for which they have established websites support this notion of the Internet as a highly adaptive technology which can be used by Indigenous peoples for whatever objectives they choose.

Reaffirmation of Indigenous Identity

In contrast with the concerns of the technological determinists, Indigenous peoples are using the Internet as a tool to revitalize and rebuild their cultures. It must be said that all authentic Indigenous websites are reaffirmations of Indigenous identity and assertions of the right of Indigenous peoples to survive. Ironically, the greatest tool of globalization is helping small communities to reinforce their culture and sense of connection to place. Landzelius (2006) distinguishes two different orientations of online Indigenous identity: those aimed at "inreach" (building community and creating a virtual space for shared meanings within an Indigenous people) and those aimed at outreach (connecting with people from outside). Many websites do both at the same time, offering a public face but sometimes excluding outsiders from private spaces and protected knowledge on the site through a variety of mechanisms, such as log-ins and the use of Indigenous languages only spoken by members of the community.

Kitalong and Kitalong (2000) describe the role of the Internet in articulating a postcolonial identity for the Pacific island nation of Palau. Palauans have used the Internet to teach themselves and outsiders about their culture, language, people, and current community concerns, and from this knowledge to achieve positive social outcomes, such as the ban on prostitution by the parliament that was instigated in 1998 through an e-petition signed by residents and expatriates. Community is created in various ways: via Palauan language, proverbs and sayings, Palauan music and images, and guestbooks in which visitors can leave their email addresses in order to keep in contact. Kitalong and Kitalong note how many Palauan websites create a sense of Palauanness but without specifically excluding the outsider, for example by the use of vernacular and insider expressions, and of uncaptioned images that would only be totally understandable by people who have grown up in Palau.

A major reason why Indigenous websites often focus on reaching out beyond the community is the desire to create intercultural dialogue with the outside world in order to correct false representations and stereotypes. The Karen website is one that is designed specifically as a "Cultural Exchange and a Communication

Centre," obviously intended for the outside world since its chosen language is English (Dyson & Underwood, 2006). The site presents images and information about the Karen people in the Burma-Thailand region including traditional stories, songs, news items, personal pages, FAQs (frequently asked questions), and links. It avoids stereotyping by presenting a profile of a Karen IT professional, modern and historical political issues, as well as traditional culture. The message board and chat facility transform the site from purely information-provider to a tool of communication and interaction between educated Karen and the outside.

Indigenous e-tourism is another form of outreach. It can generate income as well as enhance respect for the people and their way of life. Arnold and Plymire (2000) contrast the official homepages of the Eastern and Western bands of the Cherokee. Whereas that of the Western band is largely for Cherokee users, the website of the Eastern Cherokee is mainly for non-Native visitors. Its purpose is to expand tourism through providing information about tourist attractions. However, the website also provides links to the Cherokee elementary-school site, with its recordings of Cherokee elders relating traditional legends and its fifth-graders' homepages. Arnold and Plymire see this backdrop to the tourism website as a deliberate encouragement for outside visitors to recognize the connection between their purchasing of tourism products and both the financing of community projects (like the computer labs and school) and the rebuilding of culture through the children's learning from their elders. The tourism site is thus realizing the potential of the Internet to simultaneously generate income and control the outsider view of Cherokee identity.

Reconnecting the Indigenous Diaspora

One powerful way in which Indigenous peoples are redefining their identities is through reunification via the Internet. In the past and present Indigenous peoples have often been forced from their territories to make way for colonization or development, or to seek jobs. Sioui (2007) describes how the Wendat/Wyandotte nation were dispersed from their original home in Ontario, Canada, to four localities, some as far away as Oklahoma, beginning in 1649. Following the first reunion on their ancestral lands 350 years after the dispersal, the Internet is being used for daily communications and to rebuild the Wendat Confederacy. Several discussion groups have been established on Yahoo. Members of the "Wendat Culture" group talk about a range of topics from identity, culture, and language, to planned gatherings and cultural groups, to reacquisition of their ancestral territory. The "Wendat Longhouse" arrives at decisions about sensitive topics, while the "Longhouse Women" work towards rebuilding the role of women in what was once a matrifocal society. The Internet is crucial in helping them re-establish a sense of community.

Indigenous Mexican residents of Teotitlán del Valle participated in the creation of community webpages to link with the transborder diaspora of immigrant

workers in the US. Zapotec members of 13 cooperatives and the community museum created the webpages as "a form of digital border crossing that involves dialogue – usually at multiple levels – around cultural memory and contested ideas about shared heritage and tradition" (Stephen, 2007, p. 282). Three elements were prominent in the pages: the residents claim to being the first Zapotec settlement in the region; an emphasis on the cultural continuity of language and pre-colonial weaving and dying techniques; and connections between Zapotec identity and wider Indigenous groupings. In common with many Indigenous websites, the Zapotec pages reflected the importance of the landscape and how "place-based and literally 'in the land'" cultural memory is for this community, far from the nightmare of cultural homogenization and globalization predicted by some for Indigenous people in the Internet age (Stephen, 2007, p. 289).

For the Sami people in northern Europe, the Internet has been instrumental in restoring – at least virtually – a borderless territory. In the nineteenth century the borders between Norway, Sweden, and Finland were closed, forcing Sami reindeer herders to choose in which country they were to register (Blind, 2005). The establishment of SameNet in 1997 created a digital meeting-place for all Sami and so allowed the people to overcome, at least virtually, the divisions which had been imposed on them.

Indigenous Cyberactivism

Far from a colonizing force, ICT has become a powerful weapon for fighting colonization and the postcolonial forces that continue to oppress Indigenous peoples. There have been many studies conducted on Indigenous cyberactivism. It represents a highly targeted form of intercultural dialogue and affirmation of identity for political ends. Most cases come from Latin America, where particularly repressive regimes have been in place, but online battles for Indigenous rights are also common in other regions. Land rights, the right to self-determination and native sovereignty, self-government, treaty, legal issues, the right to economic resources, environmental issues and protection of the land and waterways usually form the focus of these online campaigns.

In Chile the Mapuche have been at the forefront of waging an online debate on issues which impact them historically and today, such as assimilation, logging, planting of exotic timbers, construction of highways bisecting Mapuche lands, and forced relocations when dams are built (Dyson & Underwood, 2006). For them, the Internet has challenged and replaced traditional media and channels of communication: despite the fact that Mapuche make up 10 percent of the population of Chile, they have almost no access to mainstream media, which is largely controlled by the political establishment, military, and church (Paillan, quoted in Dyson & Underwood, 2006). Mapuche organizations and individuals, residing in Chile and overseas, have established 25 or more websites used primarily for two functions. Firstly, they provide a means of communication and mobilization

of Mapuche people. Secondly, they have been successful as a tool for "building a counter-hegemonic discourse that has started to impact the national public sphere" (Salazar, 2007, p. 23).

Websites to support treaties and land rights are one form of political activism which lies at the heart of Indigenous cultures, given their traditional links with the land and the dishonoring of many treaties historically. The Agreements Treaties and Negotiated Settlements (ATNS) database is an online resource of agreements struck between Indigenous people in Australia and governments, mining companies, or other parties. With over 20,000 visits per month, it is assisting Aboriginal and Torres Strait Islander communities to arrive at recognition of their rights and entitlements with respect to land use, resource management, heritage protection, etc. (Langton, Mazel, & Palmer, 2007).

The Internet has been instrumental in forging new Indigenous identities beyond those of individual nations. Its ability to connect people over vast geographic distances has allowed the creation of regionally based and international pan-Indigenous movements and organizations which would not have been possible before. These allow collective action based on the commonality of Indigenous peoples' struggles for human rights. Niezen (2005) argues that the term "Indigenous peoples" is a relatively new one, a product of the mid-twentieth century. He notes that most sites associated with the word "Indigenous" are devoted to legal and political goals, and that almost all are ultimately associated with collective claims of self-determination. He attributes to the influence of the Internet the extension of the word "Indigenous" beyond the Americas, Australia, Aotearoa (New Zealand), Oceania and northern Europe to now include tribal minorities in Africa and Asia.

Language Online

One of the most significant manifestations of Indigenous identity on the Internet is the use of language. With many languages no longer spoken and others known by a mere handful of living speakers the Internet is providing a way for language revitalization and cultural reaffirmation.

It is not known how many websites there are in Indigenous languages. Crystal (2006) guesses that probably more than a quarter of the world's 6,000 languages have some sort of Internet presence. He states that it is not hard to find minority languages in cyberspace, particularly in the more technologically advanced countries like the US, Canada, and Australia. The Internet is "the ideal medium for minority languages, given the relative cheapness and ease of creating a web page, compared with the cost and difficulty of obtaining a newspaper page, or a programme or advertisement on radio or television" (Crystal, 2006, p. 234).

Many Indigenous languages are represented on the Internet, in the form of dictionaries, word lists, grammars, stories in text or on audio recording, translations, etc., but most are not used as media of communication (Osborn, 2006). The sites

are generally *about* Indigenous languages: they form linguistic and educational resources for those wishing to learn or teach the language or acquire background information about the language. Some of these are controlled by Indigenous organizations, but more often they are authored by non-Indigenous linguists and made available by public organizations such as libraries, universities, or other institutions, or language projects such as LINGUIST List, the Endangered Language Fund, SIL International, the Archive of the Indigenous Languages of Latin America (AILLA), the Society for the Study of the Indigenous Languages of the Americas (SSILA), and the Hans Rausing Endangered Languages Project (HRELP).

There are many challenges to establishing a web presence for an Indigenous language and developing an active online community of users, even where that language is still in daily use. Sustainability is a major impediment when the number of speakers who have an Internet connection is very small: for the Sami people, media websites publish news in North Sami, the major dialect, but only give limited coverage in Inari and Skolt Sami, and completely ignore the two rarest dialects (Taylor, 2007). Moreover, many Indigenous communities are not large enough to make viable the development of specialized keyboards suitable for typing their languages and voice recognition software for translating oral input into written text (Crystal, 2006).

The physical representation of Indigenous languages in email, in discussion forums or on websites can be difficult. In Africa, with over 2,000 languages, Osborn (2006) notes that for some languages there is no standardized method of spelling; sometimes variations in spelling occur when languages cross national borders; and for the less widely spoken languages there is perhaps no system of writing them down at all. There are enormous difficulties in representing languages which require specialized fonts or characters. Even with the development of the Unicode system, which expands the old ASCII character-set hugely and so makes many more characters possible, Osborne claims that it is not widely understood in Africa by ICT professionals and therefore not widely applied.

Notwithstanding these challenges – and those outlined earlier, such as fears over possible misappropriation of stories and other language materials placed online – there have been many Internet success stories with regard to Indigenous languages. In Australia there is a great interest in using ICT, such as the Internet, CD-ROMs, touch-screen systems, etc., to revitalize Indigenous languages. Nathan, who maintains the Aboriginal Languages of Australia portal to resources for 80 languages, claims that only 20 remain strong, out of an estimated 600 before colonization. One of the most ambitious projects is to revive Arwarbukarl, an Aboriginal language from the Hunter Valley district north of Sydney. This language has long since been regarded as extinct apart from a written grammar, vocabulary, and translations of prayers and St Luke's Gospel made in the 1830s by missionary Rev. Threlkeld in collaboration with Biraban, the then leader of the clan. In 2005 there were 20 members of the community learning the language for the first time in well over a century, using a language database

delivered over the Internet or distributed to language centers on CD-ROM (McKenny, Hughes, & Arposio, 2007).

Of longer duration and more wide-ranging have been the language programs in Hawai'i. Almost a century after the banning of Hawaiian as the language of instruction, concerns over the small number of children who could speak their native language caused a major change of direction in the school system in the 1980s (Warschauer, 1998). Hawaiian immersion schools were established and university programs in Hawaiian language and culture launched. A major challenge was how to connect small, isolated communities of learners strung across the Hawaiian Islands and provide opportunities for them to converse with each other. The founding in 1992 of the Leokï ("Powerful Voice") Bulletin Board – the first such system completely in an Indigenous language – allowed collaborative learning and support through email, chat, discussion forums, and file sharing. The interactive communication technologies of the Internet and its multimedia capabilities allowed learning to take place in a culturally appropriate way, fitting with the cooperative nature of Hawaiian culture and its strengths in oral and graphical media. However, this was not achieved easily. All menus, error messages, and other linguistic features of the screen display had to be translated into Hawaiian (Donaghy, 1998). Methods had to be devised for displaying the diacritical marks of the Hawaiian language correctly both on the website and in communications. A customized keyboard was developed to allow easy typing in Hawaiian. A database of new terms to describe aspects of modern life was devised, as well as teaching materials for learning Hawaiian. Students created new multimedia Hawaiian language materials and published these on the web to extend the resources available to their peers.

Lee (2006) examines a somewhat different aspect of Indigenous language use online: the participation of Indigenous adults in discussion forums and chat rooms. Just as with the language revitalization projects, these too are a scene of reaffirmation of collective identity, although here there is also an interrogation of what that identity means in a globalized world. The heightened sense of contestation arises because most of the Tongan participants she studied were expatriates, members of the diaspora looking for a better life in wealthier countries. They were the ones who had access to the Internet, unlike many of their compatriots back home who would not have been able to take part in forums such as these. Lee found that the discussion forums allowed expatriates to return to an older sense of self and a shared sense of Tongan values, rooted in their cultural homeland. Yet it also meant that younger Tongans could query issues they would not have been allowed to raise normally in the more conservative society in Tonga.

Central to the issue of the identity of the Tongan online community was language, most poignantly fought out when children of immigrants, who enjoyed varying levels of fluency in Tongan, sought inclusion. For many of these younger people, forums conducted at least partially in Tongan provided an ideal opportunity to learn more language. However, there was some dismay when their language skills did not allow them to participate fully and they were forced to

include "Tonglish" as they mixed the few words of Tongan they knew with their dominant language English. A dilemma arose in the discussions: to insist on Tongan as the sole medium of communication and so exclude many migrant offspring, or to conduct the forums in English and thus shut out older Tongans. From her study over several years Lee concluded that language is central to the debate on cultural identity since it is a direct expression of culture and the ultimate means of retaining identity in the face of globalization.

Most Indigenous peoples would agree with this position, seeing language as "the root and heart of our culture" (quoted in Hennessy & Moore, 2007). However, it does raise the issue of how Indigenous people who no longer speak their language can achieve and reaffirm their identity. Indeed, Lee found that, for Tongans of the diaspora, identity can be asserted in other ways without a knowledge of the native language.

Conclusion

Indigenous peoples around the world have appropriated the medium of the Internet for their own purposes. As has been shown, they have been extremely proactive in establishing their own websites from as early as 1994 when many others in the non-Indigenous community had not even considered it (Polly, 1998). They have been eager to use the Internet to re-establish lines of communication long since broken, revitalize languages so often endangered, reaffirm their identity once again, and mobilize their communities to fight for their right to exist in the twenty-first century.

It should not be surprising that Indigenous people have so effectively engaged with this new medium. Cullen (2005) sees this engagement in terms of "adapting a foreign invention and making it their own." The Internet is relatively new. It has the power to be shaped by those who choose to use it. Its lack of any defined hierarchy, its absence of a centralized hub, and its laterally spreading network of links represent a propensity towards democracy (Delgado-P., 2002). This paves the way for the inclusion of minority groups, such as Indigenous people, who have previously been excluded or underrepresented in conventional media.

However, despite the success of Indigenous peoples' appropriation of the Internet, there are still many challenges. Probably the greatest challenge and the most persistent is the lack of Internet access for most Indigenous people due to poor connectivity, the cost of technology, and their lack of computer skills, exacerbated by the remote locations where they often live. Given the low numbers of Indigenous people connected to the Internet, one must question who their websites are really for. The relatively few websites in Indigenous languages confirm that many are probably aimed more at an outside audience. This would be the case particularly where the language chosen for the site is the major international language of English in regions where this is not the normal means of communication, such as Latin America and Asia.

Much more work will have to be done, and is being done, on a national and global scale. Community owned and run computer-technology centers have been the most effective means of improving access and are now widespread in the developed world as well as increasingly in many developing countries, often financed by governments or NGOs. Some issues, such as protecting intellectual property and traditional knowledge and culture have to some extent been solved by password protection or by keeping sensitive information off the Internet, but there are also new technical solutions in the pipeline, such as the use of rights markup languages to restrict access and enforce protection (Hunter, 2002). Measures such as these will ensure that Indigenous people continue to expand their presence on the Internet.

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