

ICTs AND INDIGENOUS PEOPLE

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CONTEXT AND OUTLINE OF THE PROBLEM

Article 15 of the WSIS Declaration of The World Summit on the Information Society¹ states “In the evolution of the Information Society, particular attention must be given to the special situation of indigenous peoples, as well as to the preservation of their heritage and their cultural legacy”.

Although worldwide there has been significant growth in access to computers and the Internet, the lack of access to such resources continues to be a major form of social and economic exclusion for many peoples across the globe. Among these are indigenous peoples who, both in developing and developed countries, often experience the greatest disparity in access to the educational opportunities afforded by information and communication technologies (ICTs). Many indigenous peoples lack access to the Internet or do not have the expertise to use ICTs to

access global knowledge or to create their own content and resources². The challenges that contribute to the digital exclusion faced by indigenous peoples in sub-Saharan Africa as well as other regions of the world include:

- Lack of basic infrastructure including electricity, computer hardware, and software
- High cost of technology
- Limited budget allocations for IT maintenance and life-cycle
- Lack of technology training and support
- Lack of ICT expertise among policymakers
- Shortage of teachers with IT skills
- Dominance of English and other non-indigenous languages on the Internet
- Lack of parental and community support
- Lack of legislative and policy implementations to support longer term ICT initiatives

This form of digital exclusion represents only one manifestation of the broader economic and social exclusion experienced by many indigenous peoples across the globe. For ICTs to empower indigenous culture and education, governments need to establish new educational policy structures and initiatives that will provide indigenous peoples and schools with equitable access to:

- Digital devices and broadband connectivity to the Internet
- High quality, culturally appropriate digital learning resources
- Educators who are competent in using ICTs in culturally responsive ways
- Use of ICTs for preserving and revitalizing indigenous languages and for the creation or sharing of culturally-based knowledge and content

IMPORTANCE OF INDIGENOUS KNOWLEDGE

There is growing recognition of the importance and contribution of indigenous traditional knowledge to global society. **IFLA** (The International Federation of Library Associations and Institutions), for example, acknowledges the intrinsic value and importance of indigenous traditional knowledge and local community knowledge, and the need:

- To recognize the significance, relevance, and value of indigenous traditional knowledge and local community knowledge, so that this knowledge is used when developing solutions to difficult modern issues and when planning and implementing projects.
- To protect indigenous traditional knowledge and local traditional knowledge for the benefit of indigenous peoples as well as for the benefit of the rest of the world. This knowledge is vulnerable, both because it is exploitable and has been exploited, and because of the loss of elders and the significant decline in emphasis on transmission of the knowledge to younger generations in the face of pressures for modernization.
- To implement effective mechanisms for technology transfer, capacity building, and protection against exploitation in accordance with the Convention on Biological Diversity³, the ILO Convention 169⁴ and other conventions relating to sustainable development and the interests of indigenous peoples.⁵

CRITIQUE OF POLICY OPTIONS

There is a long legacy of educational policies in colonized countries that have been significant factors in the erosion of indigenous language and culture. These include policies such as removing indigenous children from their families and placing them in boarding schools and/or forbidding the indigenous language to be used in school^{6,7}. Other policies contributing to the erosion of language and culture include the failure to reinforce the many aspects of indigenous culture such as language, food, oral histories, stories, and traditional knowledge in the curriculum.

In recent years, a number of countries have initiated policies, consistent with the United National Declaration on the Rights of Indigenous Peoples⁸, that recognize the rights of indigenous peoples to not be subjected to forced assimilation or destruction of their culture. Consequently, indigenous communities increasingly have more power and control over their schools, enabling them to move towards more culturally based educational models. Such models encourage quality instructional practices rooted in a cultural and linguistically relevant context. This includes incorporating indigenous language, content, and teaching practices that are harmonious with indigenous culture and contemporary ways of knowing.

In many ways ICTs may be viewed as a two-edged sword that has the potential to accelerate the erosion of indigenous culture and knowledge. On the other hand, the new digital technologies offer the potential to empower and support the creation of new culturally responsive learning resources and environments for indigenous children.

ICTS AND THE EROSION OF CULTURE

For indigenous peoples, as is the case for all people, technology has often had unforeseen and unwanted consequences. ICTS may be used to reinforce and accelerate the dominance of Western-based modes of thought, culture, and learning strategies. Media such as television, radio, films, and computer games have resulted in massive and continuous exposure of many indigenous youth to non-indigenous cultural values and information with few opportunities for reinforcement of their own cultural heritage and language. As a result, “After hundreds or thousands of years of development and evolution, we are facing the disappearance of unique human cultures and their intellectual heritages.”⁹ According to UNESCO Atlas of the World’s Languages in Danger, there are approximately 3000 endangered languages across the globe¹⁰.

It is estimated that approximately 600 languages have disappeared in the last century and they continue to disappear at the rate of one language every two weeks. Up to 90 percent of the world’s languages are likely to disappear before the end of this century if current trends are allowed to continue¹¹.

Television has also directly contributed to many societal ills of indigenous peoples including loss of indigenous culture, lack of community involvement, disrespect toward others, violence, and obesity. It has also interfered with or replaced traditions that are held as sacred in Indigenous cultures. In addition, it has contributed to negative portrayals and images of indigenous peoples, further leading to their degradation and exclusion within the larger society¹².

Elders are concerned that their children are losing ability in oral traditions and songs. They are concerned that ICTs can alter verbal communication and memory constructs while failing to build memory skills that indigenous peoples need to learn songs and dances about their culture¹³.

ICTS AND THE REINFORCEMENT OF INDIGENOUS CULTURE AND KNOWLEDGE

There is growing concern about this loss of culture and an increasing recognition that indigenous peoples have the right to practice and revitalize their own cultural traditions, customs and knowledge¹⁴ and incorporate and apply ICTs on their own terms, including the right to create and share cultural content in their own languages and to design initiatives and programmes related to the achievement of Millennium Development Goal 8.

There are examples of the ways ICTs, when appropriate and under the control of indigenous peoples, can be supportive of their language and culture while also opening new doors and career opportunities through the development of ICT skills and knowledge. ICTs can also be used to extend learning opportunities to indigenous students who live in remote and isolated areas. The following are a few examples of the ways ICTs may be used in culturally responsive ways.

EXAMPLES OF WAYS ICTS CAN SUPPORT INDIGENOUS EDUCATION

There are many models across the globe that show how ICTs can be applied by indigenous peoples to strengthen and reinforce indigenous knowledge and culture and provide more culturally responsive learning resources and environments for their children. A few examples include:

The Four Directions Project: An Indigenous Model – United States

The 4Directions Project involved 19 schools serving indigenous children in all parts of the United States. It demonstrates the benefits of indigenous communities partnering with private and public universities and other organization to explore ways ICTs can be used to help develop culturally responsive curriculum. Features of this programme included:

- Restructuring curricula to incorporate local cultures and values
- A strong school-home and school-community focus
- Collaborating across sites through on-site training, online tutoring, and cooperative teaming
- Creating networked “virtual communities” of indigenous teachers and students
- Encouraging life-long learning by extending technology support to communities surrounding project schools
- Maintaining a network database of culturally appropriate teaching, assessment, professional development, and student-created resources
- Creating a research-based evaluation model

As the core of this project, each school developed an advisory team consisting of students, parents, teachers, paraprofessionals, elders and other community members. The teams developed authentic learning tasks that were relevant to students and drawn from the unique cultural context of each indigenous community. These tasks were then developed into “thematic cycles”, central components of core curricula that allowed the presentation of subject matter within a cultural context and integrated the cultural theme into other subjects. All members of the team, parents, and community members, including elders, were involved in the development of curricula and in the evaluation of the project and its relevance to the traditions of the community. Targeted curriculum areas included art, mathematics, science, social studies, economics, geography, language arts, and fine arts¹⁵.

Teacher Education in Sub-Saharan Africa (TESSA)

The principal purpose of Teacher Education in Sub-Saharan Africa (TESSA) research and development network is to improve the quality of, and extend access to, teacher education in Sub-Saharan Africa. TESSA brings together teachers and teacher educators from across Africa. It offers a range of materials (Open Educational Resources) to support school culturally-based teacher education and training. Currently 12 African countries are actively engaged in TESSA activities and more than 700 African academic teacher educators have participated in the TESSA process including authoring and adapting the core TESSA study units. The TESSA study units for primary teachers have been adapted to ten country contexts and are available on the TESSA website in Arabic, English, French, and Kiswahili. All TESSA study units contain a series of activities that participating teachers can carry out in their classrooms. Guidance handbooks have been created for teacher educators to help integrate and make effective use of study units in their courses. It is estimated that in 2010, 400,000 teachers in 19 teacher education programmes will have benefitted from their engagement with the TESSA resources¹⁶.

Honey Bee Network - India

The Honey Bee Network comprises a comprehensive multimedia/multilingual database of primary educational resources in native languages as well as information relating to new innovations and ideas, including, *inter alia*, horticulture, biodiversity, and herbal medicine. In the same way that honeybees thrive on pollen from flowers, the Honey Bee Network is designed around the principle of information and knowledge sharing for the common good. Just as taking nectar away from flowers does not make them poorer, the objective of the Honey Bee Network is to enrich the lives of the people who share their innovations and ideas by helping them realize the value of their knowledge. By facilitating the cross-cultural and multi-linguistic exchange of ideas, the Honey Bee Network provides an opportunity to tap into the creative component of indigenous knowledge systems. Unlike the more developed segments of urban society, the creativity of knowledge-rich peoples in rural and isolated areas goes largely unseen because they lack the necessary channels of sharing their ideas with the wider polity. By providing publicly available access points (e.g. kiosks) in remote villages throughout India, the Honey Bee Network affords these geographically disadvantaged peoples an opportunity to share their creations and ideas with their peers in other parts of the country and the global community¹⁷.

Project Multimedia Systems for Ethnographic Materials, Apoyo Para el Campesino – Indígena del Oriente Boliviano (APCOB) - Bolivia

Indigenous organizations and NGOs in Bolivia have worked collaboratively to build a vast collection of multimedia materials of indigenous knowledge about culture and economic practices in Bolivia. The project uses a variety of multimedia applications including video, audio recordings, and images to develop school materials about their indigenous cultures for use in primary and secondary schools. The materials are used to enrich subjects such as history, geography, culture, and languages and are also used for teacher training. Efforts are underway to integrate the materials in the national curriculum and to include this initiative as part of the Bolivia ICT policy for the education sector¹⁸.

Thailand Indigenous Knowledge Initiatives - Thailand

Thailand created a national policy on Thai knowledge and established a structure to support the policy including:

- Establishment of a Thai Knowledge Council comprised of Thai knowledge experts and educators that provided overall direction to the project including curriculum, instruction, and promotion of Thai knowledge
- Establishment of the National Research Institute for Thai Knowledge and Education to promote research on Thai knowledge
- Establishment of a Thai Knowledge Fund to support research and development of curriculum, instruction, and promotion of Thai knowledge¹⁹

There are a growing number of initiatives in the use of ICTs to help address the needs of indigenous education. The International Institute for Communication and Development (IICD) report *ICTs for Education: Impact and Lessons Learned from IICD-Supported Activities* describes 32 projects in developing countries across the globe that may serve as models for other countries²⁰. Governments are encouraged to work with indigenous organizations to engage in similar initiatives and to establish policy structures that will enable indigenous peoples, working in partnership with ministries of education and universities, to provide culturally responsive learning opportunities for their children through the use of ICTs. By doing so, they will help the indigenous peoples in their countries to fully participate in knowledge societies.

POLICY RECOMMENDATIONS

Governments are encouraged to establish policy structures that will enable indigenous peoples, working in partnership with ministries of education and universities, to develop their own approaches to use ICTs to provide culturally-responsive learning opportunities for their children. By doing so, they will help the indigenous peoples in their countries to fully participate in knowledge societies. The following recommendations are offered to help governments to review legacy educational policies that may need to be replaced and to consider the development of new policies to address the educational needs of indigenous peoples:

Provide a policy framework that enables indigenous communities to have control of their schools

This framework is consistent with the United Nations Declaration on the Rights of Indigenous Peoples and is essential in order for indigenous peoples to use ICTs in ways that support indigenous language, culture, and traditional wisdom. Countries such as the United States and others have created policy frameworks that enable indigenous communities to have authority over the school's curriculum, staffing, facilities, and policies while still being responsible for meeting national standards.

Establish national e-strategies to ensure full inclusion of indigenous peoples in the Knowledge Society

Schools serving indigenous children should be provided with both computers and access to the Internet. The cost of computers, tablets, netbooks, and other digital devices continues to decline dramatically. There are also exemplary models of refurbishing business, industry, and government computers for use in schools²¹. In addition, mobile networks are now available to 90% of the world population, 80% of the population living in rural areas, and 68% of the population in developing countries²². The new mobile technologies now have the potential to offer educational opportunities for indigenous peoples and others who have traditionally not had access to ICTs. Governments are encouraged to establish policies, including appropriate administrative and legislative measures, to provide digital access to indigenous communities. Attention should be paid to legacy national telecommunications regulations and policies that require schools and universities to pay the same rates as commercial entities.

Expand wireless capacity to provide access to indigenous communities and schools in remote areas

Emerging broadband technologies now afford developing countries with an opportunity to leapfrog ICT levels of access by skipping the intermediate development steps taken by developed countries²³. For example, the new wireless standard, 802.22 for Wireless Regional Area Networks (WRAN)²⁴, will cover up to 12,000 square miles. Governments are encouraged to use these new developments to provide access to indigenous peoples and others in rural and remote areas.

Develop schools as community centres to provide access to ICT resources

The access to ICTs in schools may benefit the entire community by allowing schools to also serve as community centres, providing Internet access to the community when the technology resources are not in use for educational purposes. This concept has proven successful both in developed and developing countries and helps strengthen the ties between the school and its community.

Develop policies to support the development of high quality content that is relevant to the cultures and languages of indigenous peoples, including non-literate persons

ICTs may be used to provide local content through the development, translation, and adaptation of local content using diverse forms of digital and traditional media by local authorities. Indigenous communities are using ICTs as a means of reinforcing and revitalizing local languages²⁵. This approach is particularly important for indigenous communities in which there are only a few remaining elders fluent in the native language. Policies should encourage partnerships between indigenous communities, universities, teacher education institutions, and private sector organizations to develop content and software in local languages that are relevant to different segments of indigenous populations including individuals with disabilities and non-literate persons.

In addition, the development of ICT-supported, culturally appropriate curriculum resources requires a blend of cultural, pedagogical, and technological expertise. The Four Directions project provides one approach to local content development, using teams comprised of elders (as the cultural experts), teachers (as the pedagogical experts), and students (as the technological experts). An additional benefit of this approach is that it helps the teachers and indigenous students develop a greater understanding and respect for the cultural knowledge of the elders while also helping the elders better understand the applications of ICTs.

Lastly, the idea that indigenous communities themselves control the rights management of their cultural intellectual property is a fundamental principle in the use of ICTs to develop educational resources that embody indigenous culture and knowledge. Local cultural protocols need to be developed, documented, and followed before the creation of digital content, and communities must be consulted with regard to the digitization of content already gathered by museums, universities, or other cultural institutions in accord with The Mataatua Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples²⁶.

Encourage and fund research in use of ICTs to support culturally based education

It is recommended that governments support research and development projects that empower indigenous communities to provide culturally relevant content, pedagogies, and learning environments for their students. Specifically research is needed to determine the:

- Local content to be incorporated into the curriculum
- Level of access to ICT devices and connectivity needed to support the curriculum
- Indigenous language requirements
- Technical infrastructure requirements
- Training and technical support requirements

Research and development is needed in areas such as translation, iconographies, and the development of necessary educational hardware and software. These include: proprietary, open source, and free software; standard character sets; language codes; electronic dictionaries; and search engines in local languages. Longitudinal studies are also needed to determine the most promising practices in the use of ICTs to support culturally responsive learning environments for indigenous children and youth. Such studies should be developed in partnership between indigenous communities and other entities such as universities, teacher education institutions, and ministries of education to build a growing body of knowledge of what works and under what conditions.

Develop national policies and laws to ensure libraries, archives, museums, and other cultural institutions partner with indigenous communities in supporting access to and development of local content and cultural resources

In many instances, some of the most important cultural artifacts, documents, images, and recordings have been removed or no longer reside within indigenous communities but are found in regional or national museums, universities, and other cultural institutions.

Indigenous peoples increasingly are requesting the return of sacred or other important historical artifacts that were removed from their communities²⁷. Some artifacts, however, may be fragile and require special environments for their protection that is not available within the community. In these instances the artifacts may be digitally repatriated for use by the community. The Four Direction Virtual Museum Project provides one approach to digitally return important cultural objects to the indigenous community²⁸. Indigenous communities should be supported in efforts to develop their own local archives and museums.

Develop educator professional development programmes designed to help non-indigenous educators to understand and support the culture of the indigenous community and the ways that ICTs may support access to indigenous content, expertise, and cultural resources

Teachers must be provided with training that equips them with the knowledge, skills, and cultural competencies to teach indigenous children. One of the issues that contribute to poor educational achievement by indigenous students is that teachers do not have the cultural competencies to teach them. Teacher courses at universities should prepare teachers to teach indigenous students and assess them against a set of cultural competencies determined by indigenous people working in universities as professors, lecturers, and administrators. Part of this training should focus on the culturally appropriate ways to use ICTs to support the learning of language and culture in the schools.

Develop online educator development programmes to prepare indigenous peoples to become teachers

One of the problems in traditional modes of teacher preparation is, when pre-service teachers must leave the community to attend a university in an urban area, they often do not return to their communities after receiving their degrees. Many indigenous people desire to become educators but do not wish to leave their communities. ICTs are being used to enable them to complete degree programmes while remaining in their communities. The Africa Virtual University Teacher Education Consortium²⁹ and the Four Corners Teacher Education Project³⁰ are examples of this approach. Such online degree programmes should be developed under the direction of indigenous professors and educators.

Foster transnational collaborative efforts to develop culturally relevant learning resources and to exchange knowledge, experience, and best practices for use of ICTs to support the education of indigenous peoples

Many indigenous peoples and cultures reside across state and national boundaries but have the same language and culture. Governments are encouraged to support transnational efforts to develop and share knowledge, best practices, and culturally relevant content and learning resources that will meet the needs of the indigenous peoples in the region³¹. OER Africa³² represents an example of such an approach. It is an innovative initiative to drive the development and use of open educational resources across all education sectors on the African continent. OER provides a vast array of high quality educational resources that are freely available for use by educators and learners, without any need to pay royalties or license fees.

Develop policies to use ICTs to provide continuous and adult education, retraining, life-long learning, and distance learning

In addition to using ICTs to support K-12 and post-secondary education of indigenous peoples, governments are encouraged to develop initiatives using ICTs and e-learning to help indigenous peoples benefit from the new opportunities offered by ICTs for traditional jobs, self-employment, and new professional careers. ICT awareness and literacy programmes should be available in indigenous communities as an initial step in achieving this goal.

Support projects combining the use of traditional media and new technologies to support the use of local languages and culture and as a means to reach rural and isolated indigenous communities

Although the new generation of digital ICTs affords unprecedented opportunities to help provide Indigenous Peoples with access to knowledge societies, the power of traditional ICTs such as radio, TV, and print media should not be ignored. Indigenous community radio stations, for instance, can help reinforce and revitalize indigenous languages and culture by providing local news, information, and educational opportunities to the community. In fact, for many indigenous communities, they may represent the most effective way to disseminate information related to health, agriculture, and education as well as national and international developments. Such stations should be operated with extensive community involvement to produce and disseminate local content in a culturally appropriate way. Governments should develop policies that encourage and support local media development and, particularly, should remove legacy policies that deny access to frequencies by indigenous communities.

SUMMARY

These policy recommendations, congruent with the United National Declaration of the Rights of Indigenous Peoples, are offered to help governments in considering policy structures that provide indigenous peoples with access to and control of the use of ICTs to empower them to be a continuing and vital force in global humanity. While Legacy educational policies and ICTs, primarily in the form of media, have been used in ways that have contributed to the loss of indigenous language and culture, there are now exciting examples, such as the ones described in this document, that demonstrate that, when ICTs are used under the control of indigenous communities, they can represent a powerful means of supporting and revitalizing indigenous culture, traditional knowledge and languages.

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The loss of indigenous language and culture and the digital exclusion of many indigenous peoples across the globe are problems of growing concern. Educational systems can use ICTs in ways that may sustain and revitalize indigenous language and knowledge, but they can also be used to accelerate the erosion of indigenous culture. This policy brief provides policy-makers with the context and challenges in the use of ICTs to support the education of indigenous peoples and provides examples of the diverse ways that ICTs may be used to support the development of culturally responsive learning environments for indigenous students. It also offers recommendations for policy that may be considered by countries to better meet the needs of indigenous peoples.

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