

# The Pedagogical Usage of Digital Technologies in an Indigenous Village in Brazil: Reflections and Challenges

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**Abstract.** This paper presents reflections on the pedagogical use of digital technologies in the Teko Nemoingo Indigenous State College from Guarani Tekoha Ocoy village, in the western state of Paraná, Brazil, and describes possibilities and challenges for the presence of these technologies in this community. This research is based on the indigenous educational organization, whose objective is to strengthen its traditional knowledge and practices, according to cultural, religious, educational and social aspects, and intends to identify the indigenous subjects as part of a society that uses technologies in its daily life and connect to a system that goes in and extends beyond the borders of villages, namely cyberculture. We noted that the technologies collaborate with the preservation and cultural dissemination and the appropriation of indigenous and non-indigenous knowledge, and instigate an increasingly multicultural education, as well as evidences requirements that such technologies should have to be more effective to this public.

**Keywords:** Indigenous Education. ICT. Digital Divide. Guarani Indian People.

## 1 Introduction

In an age dominated by information and communication technology (ICT), indigenous peoples who have often found themselves separated by digital exclusion, has been a growing interest in these technologies. This work aims to discuss the insertion of ICT into indigenous communities, highlighting that the cultural aspects of these unique groups are dynamic, and technologies are one of the mechanisms that collaborate for indigenous school teaching and learning and in valuing the traditional education of many groups that are still isolated, inserting them more actively in the era of cyberculture.

The term isolated groups is an expression that refers not only to communities that do not interact with non-indigenous people, but to people where technology has given voice to these subjects, showing to other societies that indigenous communities deserve respect for the culture they possess. Therefore, the more indigenous groups use technologies in the villages, the more indigenous movements and their socio-cultural inclusion will grow, giving them visibility and collaborating with the strengthening of their culture and the historical records of these indigenous groups, whether through the rise of the language maternal or by the peculiar characteristics of each village.

Digital technologies also help in teaching and learning processes in indigenous schools, and they also collaborate to disseminate the indigenous way of being, showing to non-indigenous people that these peoples deserve to be recognized and respected for their cultural expressions. Internet access can also be a way of pushing

for government agencies to give more support to indigenous communities in their countries.

Before the presence of these technologies and the mass communication promoted by them, indigenous peoples suffered even more with repression, loss of territories, genocide, human trafficking, etc., since it was not easy to divulge these facts, increasing the losses (by assassinations and of territories) and the disrespect towards the villages. But in this new technological age, villages have come to prominence more quickly through the internet and social networks, where information reaches other members of society, forcing policies to be established and laws enforced, including their safety.

However, there is still a lot of prejudice about indigenous peoples' use of ICTs, so that in the cultural imaginary of non-indigenous societies they can not have access to technologies and innovations, and that they must live in the forest forever. It is common students from the village studied of this research, to be targets of prejudice and report that they hear insults like: "Have they expelled you from your village?"; "Are not you Indigenous? [...] Indians' place is in the forest! "; "Indian wearing clothes and cell phone?". These positions show prejudice and aversion to the indigenous subjects, wanting to create stereotypes that are not part of these communities, since each village has the autonomy to debate and to dynamize its culture in defense their realities, and according to their needs.

Despite the potential benefits that indigenous peoples can enjoy from ICT, [1] stresses that "the cost of new technologies, the geographical isolation of many communities, the low levels of computer literacy, and the lack of knowledge of how technologies can serve indigenous goals and interests have led to such low adoption of technology". Consequently, in the school context of these communities, the use of ICT is also often rare or almost non-existent, and educational practices in this perspective are inserted according to the reality of the school and indigenous students, facing many difficulties of implementation.

Considering, nonetheless, the relevant role of the school in the insertion of ICT in indigenous communities, aiming not only to take them as resources or to be used pedagogically in the classroom, but also as instruments of empowerment and preservation of culture, the debate on the use of technologies in indigenous schools has been growing. It is important, however, to base these discussions not on a shallow knowledge of the reality of the community, which emphasizes the idealization of the questioning of the look that the researcher has on the subjects and on the research field, but on experiences made from experiences in one's own life. community to gain a more realistic view of the possibilities, difficulties and needs.

In this sense, we bring reflections on the use of ICT, as well as the difficulties in implementing actions and in the production of specific technologies for pedagogical use in indigenous school communities based on needs detected during pedagogical practices carried out with technologies in the Teko Nemoingo Indigenous State College, Guarani Tekoha Ocoy village, located in western Paraná state, in the Brazil.

This article is organized as follows: The Section 2 Section 2 presents the theoretical framework that underlies the use of ICT in indigenous communities; Section 3 gives the methodological route adopted in the research; Section 4 introduces the village studied in order to characterize it in relation to technologies; Section 5 discusses the barriers to use and what could be considered to create technological solutions for indigenous people. Finally, Section 6 contains our final considerations.

## 2 Theoretical Framework

Indigenous school education is not a universal education, and its premise is to be a differentiated education, contextualized, designed from and for the environment where it occurs. According to [2], in indigenous education it is essential to think about school curricula from the cultural reality of the communities, because students bring to the classrooms the cultural elements of their experiences, and these elements make significant learning. In harmony with this author, [3] also highlights the importance of departing from the culture of individuals when addressing curriculum content, as the insertion of culture facilitates and enhances learning by being contextualized with the reality of students.

The indigenous school becomes a space of acquisition and assimilation of curricular knowledge and traditional knowledge and practices. According to the visions and interests of indigenous leaderships, being in school generates moments in which students can relate knowledge approached in classrooms with the reality in which they are immersed, such as the environmental and geographic aspects of the community, their religion, sciences, language, daily life and livelihoods. However, throughout the process of formation of the child until adulthood, the indigenous it must also understand its role as Guarani. For this purpose, indigenous families organize themselves, passing on cultural aspects to their children, which influence the processes of schooling.

With so many influences in the schooling process, the school pedagogical team, in a concomitant way, must develop activities and teaching methods that help indigenous students to overcome such challenges and the lags arising from them, especially the contents of the curriculum, mainly in the Mathematics and Portuguese Language courses, which serve as the basis for teaching other disciplines and open the door to other areas of knowledge.

Faced with these difficulties, we highlight the motivation and interest of Guarani students for their studies and school knowledge. Their perseverance is noted in order to achieve meaningful learning, which motivates teachers to always improve their classes, because it is through this desire to learn from the students that the subjects that make up the indigenous school understand that everyone has an important role in this community.

Non-indigenous teachers should understand and respect the environment in which they are inserted, and work to show that there are other realities, with organizations of different spaces and times, different from the indigenous community, and must take care not to provoke disruption in being and living Guarani, leading them to disinterest in school education. In this sense, it is important a pedagogical work that values the local culture and does not seek a global standardization of curricula, which may suggest a process of domination of one culture over another [3]. These authors further stress that the curriculum must be integrated, interdisciplinary, meaningful and student-centered, including topics related to history and culture, challenging students to critically develop new knowledge and skills.

Based on the assumption that the environment can also modify the individual, and that the influence of those who surround it contributes to the character building and to the choices of the indigenous student, it is important that the Guarani stay in the schools of their singular groups, so that there is coexistence with the aspects of its culture, strengthen the language, its sciences and cultural practices. However, conducting pedagogical practices from the local culture does not mean that it cannot incorporate elements from other spaces and, in the case of ICT, this is highly recommended given its extraclass popularization, and that cybertulture creates unavoidable impacts on virtually all sociocultural contexts, so that, in one way or another, everyone is affected by it, and this reality does not fail to reach indigenous communities as well.

Cyberculture is defined by [4] as the contemporary cultural reality that is structured and mediated by digital network technologies. For this author, the great flow of information organized and available in cyberspace, establishes new forms of relations between humans and digital interfaces, resizing the conceptions of time, space, communication and learning, inevitably impacting all individuals, passing these to be part of this new context, either as a producer or consumer of information in that space, or even as digital excluded.

Considering culture as a dynamic element that modifies and complements itself while preserving characteristics, it can be said that indigenous culture is also affected by this reality of cyberculture and incorporates its elements. Indeed, many communities are making conscious use of technologies in their daily lives without compromising the preservation of their cultural identity as unique groups.

The acquisition of television, computers, notebook, mobile phones and tablets have become more common in all societies. For [5] technologies have a very useful aspect for indigenous communities in assisting in everyday tasks such as communication and calculation activities, and because many students use them as resources of the modern world, by choice. In addition, cyberculture creates a transcultural space, where distinct cultures meet. For [6], the internet, in particular, "proposes a meeting between cultures [...] which brings to light the creative and political character of social memory in its ceaseless and continuous movement, now enhanced in digital media." And, "the internet can present itself as a transcultural dialogical vehicle, generator of cyberculture practices built by individuals belonging to diverse sociocultural structures" [6].

This transculturality can contribute, according to this author, for indigenous peoples to rebuild and recover their linguistic and cultural heritage, to promote reflection and the consequent reduction of prejudices in relation to indigenous culture, a result of the imaginary and common sense of non-indigenous culture. This author also points out that hypertextuality, made possible by cyberculture, is an aspect that refers to the cultural practices of indigenous orality, and that may even contribute to the preservation of the memories and cultural heritage of indigenous peoples, now protected not only in the memory of people, which according to [2] endangered a whole cultural heritage, but also through digital media such as media, websites and social networks.

We can then say that contact with ICT in villages, including where this research was developed, is becoming more intense, and that teachers should use these resources as much as possible, contributing to the indigenous being part of this cultural reality as producers assets of knowledge and culture, not only as consumers of this technology, and even less as digitally excluded. This practice can help in teaching and learning school knowledge, while considering the realities of each village, which has its ways of understanding the insertion of school and ICT in their lives, as a way of interaction with non-indigenous or even with other indigenous ethnicities.

Still to [6], "The reconstruction of indigenous cultural identity with the help of post-mass digital media enables the exercise of an active cultural identity, capable of interfering performatively and politically in the social world, thus escaping the purism of "eugenics cultural"". This author also emphasizes that hypertextuality, made possible by cybercultural reality, is an aspect that refers to the "cultural practices of indigenous orality", and that may even contribute to the preservation of the cultural memories and patrimonies of indigenous peoples, now protected not only in memory of people, but also by different websites and social networks. Corroborating with these ideas, [7] also points out that digital media are important elements that contribute to the preservation, valorization and dissemination of indigenous traditional culture and that many communities have made use of the Internet for this purpose.

Considering these aspects, some researches on the use of ICT in indigenous contexts is being reported, such as [1], that provides theoretical and empirical information related to the planning and execution of information technology projects aimed at serving indigenous people, exploring cultural concerns with information technology implementation, including language issues and questions of cultural appropriateness.

Educational practices are also reported in the literature, as in [3] studied the inclusion of practice with narrative with indigenous and non-indigenous students on the subject of culture preservation; [6], which addressed the production of narratives in videos and blogs to work both the preservation of culture and the mother tongue, and in [8] e [9] that investigated the teaching of Mathematics in the State College Indigenous Teko Nemoingo, using virtual learning objects, to address mathematical curricular contents, and GeoGebra<sup>1</sup> to work concepts and contents of Geometry in a more dynamic way, relating local knowledge and practices to curricula [10].

It is important to emphasize that indigenous school education has the premise of being a differentiated education, that is, it can not be an education outside of the social and cultural context, but it is thought to and from the environment where it occurs, which does not mean that it can not incorporate elements from other spaces. And, in the case of ICT, this is very recommendable, given its popularization outside the school.

### 3 Methodological Route

The reflections presented here are the result of a dense exploratory and ethnographic research work carried out in 2017 and 2018 [11], which adopted the action research methodology, in which the Mathematics and Physics teacher interacting with the ideologies of this group's culture, analyzed the problems and their own educational practices in this reality in order to promote, from this analysis, changes in their teaching work plan, as well as reflections to other indigenous and non-indigenous teachers, in specific subjects or they teach in the early years.

As part of this research, mainly using the computer in the teaching of mathematics, the teacher began to be intimidated by the difficulties in the manipulation of technological instruments in the pedagogical context, thus the concern about how to use digital technologies in the process of teaching and learning in mathematics in this village. From this concern, some experiences with the use of technologies were developed and generated reflections on this theme, such as the use of computers and learning objects to approach mathematical curriculum contents, as reported in [8] and [9] and also with GeoGebra to work on concepts and contents of geometry in a more dynamic way, relating local knowledge and doings with curricula[10], importance already highlighted in [2].

The use of spreadsheets was also useful for the study of topics involving information processing, financial mathematics and the construction of statistical graphs. Text editors were also explored for various pedagogical activities and made possible the interdisciplinary work as they favored the exploration of the written language of both mother tongue and Portuguese as a second language.

For each developed practice, it was adopted its own methodological approach, according to the class in which it was developed, the objectives, the amount of equipment available. The first practice was developed with 20 students of 6th grade and lasted 2 lesson hours. Considering that at that time the school did not have equipment for student use, the researchers took their personal notebooks for the

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<sup>1</sup> <https://www.geogebra.org/>

development of activities. The content covered was Mathematical Interpretation and Problem Solving involving the four basic operations (Addition, Subtraction, Multiplication and Division), having been selected a game style learning object about operations with numbers in problem situations. Considering the reduced number of equipment, printed activities were prepared on the same content so that while three students were working with the software, the others would perform another activity on the same content, in another format. Thus, the method was adopted the methodology of Rotation by Learning Stations, in which the teacher organizes the students in groups that have objectives to fulfill in each of the prepared stations, in rotation system [12]. In this practice, the use of the calculator was also explored.

The second practice was developed with the same students, under the same structural conditions, for another 2 lesson hours. In this practice Fractions content was approached, and the Rotation by Learning Stations methodology was also used, so that while most of the class developed printed content activities, 3 students worked with a fraction game.

The third practice could be developed in the Computer Lab, which at that time had 4 computers in operation, with high school students who worked in pairs with Geogebra software to approach Flat Geometry content. Prior to practicing with the software, the teacher developed several contextualized activities exploring the geometry present in the community culture as reported in detail in [10]. In addition to these specific activities, others involving the use of the calculator, spreadsheets and text editors can be found in [11].

The results of these practices were recorded in a field diary, so that, during the activities, and after analyzing the experiences and the records, it was possible to ascertain the structural reality and the relationship of the community members with the technologies, which allowed reflections on the main barriers and possible solutions for the implementation of pedagogical practices with technologies articulated with the culture of this indigenous community. The information reported comes from investigations carried out in [11] as a teacher-researcher active in the village college for five years, and whose descriptions and experiences were made in loco, whose results are described in the next sections.

#### **4 The Tekoha Ocoy village and its relationship with the Technologies**

Located by one of Itaipu Lake's borders, surrounded by agricultural plantations and the permanent preservation area, the village also borders two small rural villages populated by descendants of European immigrants, mostly German and Italian, and access is made by highway PR-497, following for a rural road of approximately 17 kilometers, which is the distance from the nearest town.

Although the community suffers from environmental and cultural neglect, the Guarani remain in this village because of the difficulty of finding other places to live and are forced to create livelihood mechanisms in this area. About 800 people live today in the Guarani Tekoha Ocoy village, in an area of 231 hectares, where much of this land belongs to Lake Itaipu and can not be used for planting or building. Its population consists of two subgroups, the Mbyá and the Nhandeva, two of the three subdivisions of the Guarani peoples, and everyone speaks the Guarani language, which is important for the maintenance of their culture.

The main economic activity is agriculture, using the technique known as coivara, characterized by the rotation between the use and the rest of the soil, cultivating mainly beans and corn, although there are also the cultivation of peanuts, watermelons, potatoes, cassava and bananas. However, land for planting is not

sufficient to the amount of families in the village, who need to find means of subsistence outside, such as working in refrigerators, and agricultural and farming activities in other properties.

The community has as income the amount of tickets collected from tourists who visit it at the Indigenous Cultural Week in April, where there are presentations of dances, songs and lectures that help to disseminate and promote respect for the Guarani culture. During the year, other visits are scheduled directly with the cacique or with the direction of the school, also contributing to the sale of indigenous handicrafts, which are loaded with cultural value and ethnic traits, are important messengers of this peculiar culture beyond the limits of the village.

Another livelihood is the Itaipu lake fishponds that are divided among the families of the community and used in commemorative dates according to the Guarani traditions.

Even in this reality, the community is not unrelated to the ICT, which has arrived in the school and in the houses of the community and has been helped the Guarani to construct new means of cultural interaction. Almost all homes have a cell phone, although few have computers with internet access. However, the subjects of this group are in solidarity and divide their belongings, and in this way, all, particularly the younger ones, end up interacting with the ICT.

Guarani families, in general, raise their children with educational methods without any reprimand and, in the majority, stimulating the autonomy and independence of their acts, which sometimes leads many children and adolescents to, through observation, acquire habits and behaviors similar to those of their parents or the elderly, and even of their teachers. This behavior can be positive for the appropriation of new technologies.

The village school serves an average of 350 students, counting Elementary II, High School and Youth and Adult Education. Only from 2018, 12 computers were purchased with funds raised by actions the teachers carried out to the Informatics laboratory, and in the year 2019, were acquired 14 notebooks by the Projeto Conectados, which has helped indigenous and non-indigenous teachers to insert these technologies into the classroom. Before that, there were only four computers, shared with the teachers, by scheduling.

## **5 Barriers and challenges in the use of ICT by Guaranis**

The first barrier to be overcome is to take the free internet access to the village, improving the quality of connectivity in school, since without quality connection, all online activities are compromised. Virtually all other state colleges have access to online class registration, but this Indian college does not have it, due to its location and the poor quality of the internet. Another difficulty of the school is about the maintenance of computers and notebooks, for not having a technical professional for this function, who could also follow the classes in the computer lab, assisting the teacher and guiding students to the correct use of such equipment. In this sense, we perceive similarities with the difficulties pointed out by [13] in rural contexts when it indicates that the implementation of technologies in these places requires more than just providing equipment but involves a broad and reality-appropriate structure that considers them specific problems and maintenance.

In terms of infrastructure, there was improvement with the acquisition of equipment. In 2017, when the first experiment with digital games was performed [8], there were no computers available for use with students, requiring the use of our researchers' personal laptops; By 2018 when we did the work with Geogebra [10] it was possible to use school equipment, and by 2019 more equipment was purchased

for student use, but there is still much to improve so that effective work with digital technologies can be developed.

It could also offer basic computer courses for the students in the second shift, since they have many difficulties in the use of these devices, which is even more aggravated in the Education of Youths and Adults, whose people are outside the generational range most accustomed to the technologies.

Another necessity in this indigenous school is the training of teachers for the pedagogical use of digital technologies in indigenous school education. Sometimes both teachers and the leadership of indigenous schools are reluctant to use or even allow the use of ICT in class because of the lack of knowledge and preconceptions about technologies, and because they do not know how to deal with ICT, they advocate teaching without them.

Recognizing this need for training some initiatives have been taken to overcome or at least mitigate the problems caused by this need in some communities, such as [14] and [15], which indicate great difficulty by these teachers in both instrumental and pedagogical use of ICT, highlighting the relevance of the offer of training so that technologies can be more used in these contexts.

Another point that deserves attention is the lack of technologies developed specifically for the indigenous Guarani. The process of schooling and literacy in this community still happens in the Portuguese language due to the fragility of indigenous professionals with higher or technical education to act as teachers from the mother tongue. The access of indigenous subjects to higher education is still a struggle of indigenous peoples, and although there are those who enter these institutions, as a result of cultural, financial conditions and adaptation to non-indigenous study methods, they drop out. As a result, there is a shortage of indigenous teachers, and the current staff consists of professionals whose mother tongue (Portuguese) differs from the mother tongue of students (Guarani).

The Guarani indigenous language is part of the whole of the division of subjects by grade from early childhood education through high school, however, this is still incipient for the appreciation and strengthening of cultural precepts, since language is the basis for the culture of a People keep up. This idiomatic difference generates difficulties in teacher-student interaction, as mentioned by [2], who points out that in addition to the different language, most of the time teachers also experience a different culture from the community in which they teach. Agreeing with the author, [5] also points out that language differences can have significant interference and consequences for indigenous education, especially in the early years of their school life. They also point out that it is often assumed that the mere transposition of technological resources employed in Western culture can bring benefits without considering the particularities of other contexts, since it is assumed that Western culture can be adapted to any other reality, a practice that needs to be modified if the goal is to facilitate the learning of indigenous students from contextualization.

This cultural distance between teacher and student, which includes the idiomatic difference also present in the used teaching materials, makes learning even more complex for indigenous students. In this sense, digital technologies developed in the mother tongue of these students could not only would facilitate the manipulation of the software, but also contribute to the approach of the most significant curricular contents, besides the learning of Portuguese as a second language. However, given the limited number of speakers and readers of the Guarani language in the world (although in Paraguay, Guarani is one of the official languages of the country), there is no interest in software designers to incorporate this functionality.

Many interfaces are in English, an unknown language of these Brazilian natives who have Portuguese as a second or even third language, that calls for the adoption of simplified vocabulary in the interface for a better understanding and interaction.



In the same way, there is a lack of software that works with the indigenous reality. Many are attractive, have a colorful design, have interactivity, and other interesting features, but do not remember or represent the reality lived in the villages, or even the poor realities, of minorities, in short, do not represent the ones that do not belong to the standards built by the ethnocentrism that dominates industry and the economy, and this is another similarity to rural and indigenous realities that also suffer from a lack of personalized content for their cultural-related pedagogical needs [16].

Fleer [16], in 1989 pointed out ten principles to guide software design for Australian Aboriginal students, that we can generalize for other indigenous culture, and that are still challenges to the designers:

- 1) familiar content (e.g., animals);
- 2) inclusion of Aboriginal characters in the graphics and text;
- 3) familiar life experiences (e.g., hunting, family);
- 4) inclusion of cultural values and beliefs where appropriate (e.g., importance of the extended family, less emphasis on the assumption of a nuclear family);
- 5) the need for community involvement in the software design process, resulting in traditional norms being maintained (elders passing on the knowledge), cultural sensitivity, and appropriate content and emphasis;
- 6) emphasis on graphics and animation, to support Aboriginal cognitive strengths;
- 7) greater interaction by students, particularly peer and group work;
- 8) self selecting difficulty levels;
- 9) open-ended design; and
- 10) easily modifiable text to cater for a range of literacy skills and school environments.

Another problem is the price of different technologies, incompatible with the income of indigenous families, an obstacle to their acquisition. It is well known that part of the difficulties and the lack of conditions of teaching from digital technologies are still due to the lack of financial and pedagogical support by the governmental bodies that govern the educational institutions and that little invest in such resources, especially in these specific school contexts. Free software solutions become interesting in this context, as well as the partnership with companies to make feasible such a purchase, or, to count on donations of computers so that the digital inclusion of these Indians in fact occurs, once, unfortunately, governments represent a part of society that does little to preserve diversity, cultures and differentiated education in these communities.

Nonetheless, digital technologies are of interest to students and their inclusion in class arouses curiosity and interest in content, helping to minimize school drop-out rates. Likewise, teachers who regularly use ICT in class and develop differentiated educational practices have greater use of learning in student evaluations.

It is noticed that indigenous students who have cell phones have games for entertainment in this device, which could be explored in class. Exploring the use of educational games in the context of the indigenous school is still incipient, since there is a lack of software that covers things of the reality of the indigenous student with the available infrastructure.

Despite all the difficulties faced by the administrative, pedagogical and teaching staff in the use of digital technologies, teachers are present and insist on a teaching that is of quality, differentiated and broad to the formation of the Indigenous student, aiming at the strengthening of your culture. As with the work done in the community under study, despite the difficulties, there is a tradeoff between the traditional knowledge of this indigenous village and the interests of indigenous students through the computer when using technologies to mediate curriculum content during their

classes. However, the pedagogical use of ICT in the Tekoha Ocoy village has been limited to date, due to a lack of material and technical conditions.

In many moments students use computers in pairs in mathematics activities, as a result of the number of computers and the difficulty still faced by some of them to use these equipments. We should not question here the lack of digital technological knowledge of these students, on the contrary, our reflection is that Brazil must still evolve a lot in the face of the incentive to the current education, and from the political scenario of the country it is clear that little is being done. Thinking and rethinking about the norms for the indigenous groups, being notorious the need for discussion about the education of these peoples. We highlight from the experiences lived the difficulty of performing many activities with greater epistemic successes that could strengthen the academic knowledge of the school and the traditional knowledge of the village, due to the lack of specific teacher training and structural problems.

In summary, it can be said that the ICT are at the door of indigenous school education, only from the outside, waiting to enter. Inside, the concrete actions are still few, given the material and human limitations. Once these adversities have been overcome to implement methodologies for multicultural and inclusive environments mediated by ICT, as well as to develop digital artifacts for peculiar groups respecting their cultures, we consider that the era of cyberculture will be more complete.

## 6 Concluding Remarks

Digital technologies can be used to enrich the teaching and learning processes in indigenous schools, as well as to help indigenous peoples show their history and culture, although threatened by the history of a ruling class and non-indigenous oppressor, and to organize your rights. There are also many cultural concerns, particularly related to indigenous knowledge management, language issues, and cultural adequacy issues to be considered. However, for its use to be effective many actions are still necessary. In addition to structural improvements in terms of hardware and connectivity, software that considers the specificities of cultural groups is extremely important. Among these specificities we can mention the language and that the interfaces are designed considering the cultural aspects so that they make sense to the indigenous users.

We can say that the contact with the ICT in the villages is more and more intense and the professionals of the education must use these mechanisms, when possible, contributing for the indigenous people to be part of this cultural reality as active producers of knowledge and culture, and not only as consumers of this technology, but which can help in the teaching and learning of school knowledge by students, while taking into account the realities of each village, since each indigenous group has its ways of understanding the insertion of the school and ICT in their lives, as a way of interacting with non-indigenous people, or even with other indigenous ethnic groups, in Brazil and in the world.

We agree with [17] when say that although technology is not a panacea, it has the potential, if implemented in accordance with Indigenous values, traditions, and goals, to empower Indigenous communities, particularly those in remote regions and minimizing the difficulties associated with accessing education and healthcare.

Given the needs of indigenous interfaces, a careful look at software developers, those responsible for offering initial and continuing training of teachers and political representatives to these specific realities, is timely and urgent to overcome prejudices, to bring cultures closer and to value cultures and the history of indigenous peoples, with respect to differences.

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