

## [Scientific Articles]

Emilsson E., Muchembled F., Santos T., Miranda O., O'Meara C.  
*Digital Literacy and Language Maintenance:  
The Case of the Seri language (Mexico)*

### **DIGITAL LITERACY AND LANGUAGE MAINTENANCE: THE CASE OF THE SERI LANGUAGE (MEXICO)<sup>1</sup>**

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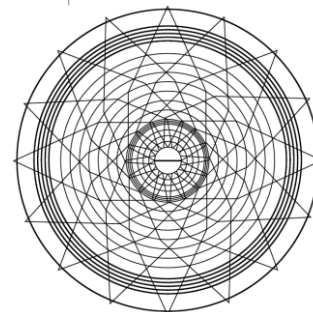
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<sup>1</sup> This paper was prepared by Collective Group, which comprised of researchers specialized in language and education, and members of the Seri community committed to maintaining the language and culture. The Coordinator is Fany Muchembled (Instituto Tecnológico de Estudios Superiores de Monterrey, Hermosillo); with Elin Emilsson (Universidad Pedagógica Nacional, Mexico City and UNESCO Chair "Language Policy for Multilingualism"), Oscar Miranda (Instituto Tecnológico de Estudios Superiores de Monterrey, Estado de México), Carolyn O'Meara (Universidad Nacional Autónoma de México), Tania Santos Cano, (Universidad Veracruzana), Albert Alvarez (Universidad Autónoma de Sonora), Julia Montaña, René Montaña, Gladys López, Blanca Pérez, Jessica López, Debora Perales (Members of the community Punta Chueca), Albert Álvarez González, UNISON.

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### **Abstract:**

This article describes a project in North-western Mexico, in the State of Sonora, in conjunction with the Seri community (known as Comcaac as an exonym), centred on digital materials and literacy practices that are culturally relevant and encourage not only strengthening the Indigenous language among youngsters, but also the dissemination of cultural practices and ways of seeing the world. Financed by the National Council for Humanities, Science and Technology (CONAHCYT) with a policy that is centred on creating horizontal links among members of the community, educators, and researchers, it aims to establish a vigorous digital platform with activities and interactive materials that are actively used, created in a collective manner based on the cultural values of this unique ethnic group.

**Keywords:** digital literacy, language maintenance, indigenous languages, intercultural education, language in use, Mexico

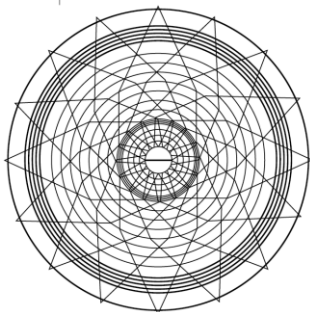
### **Introduction**

The role digital technologies play in allowing for cultural and linguistic diversity to prevail is complex and raises many questions regarding linguistic and cultural maintenance within a framework of human rights and equitable access to information on the one hand, and on the other, the threats the digital medium can have in spreading harmful content and attitudes. Nevertheless, digital technologies may also represent effective and useful tools for documenting, supporting, and making visible Indigenous languages and speakers.

The three-year research and development project that we discuss here, addresses these issues, as it aims, precisely, to make use of digital technologies by working together with community members of the Comcaac people, known as Seri, in the communities of Punta Chueca, and El Desemboque in the State of Sonora, Mexico, to boost literacy and digital literacy practices among members of the project's collective who promote the local culture and language, as well as students at the elementary, middle school and high school level, teachers and families of the communities at large.

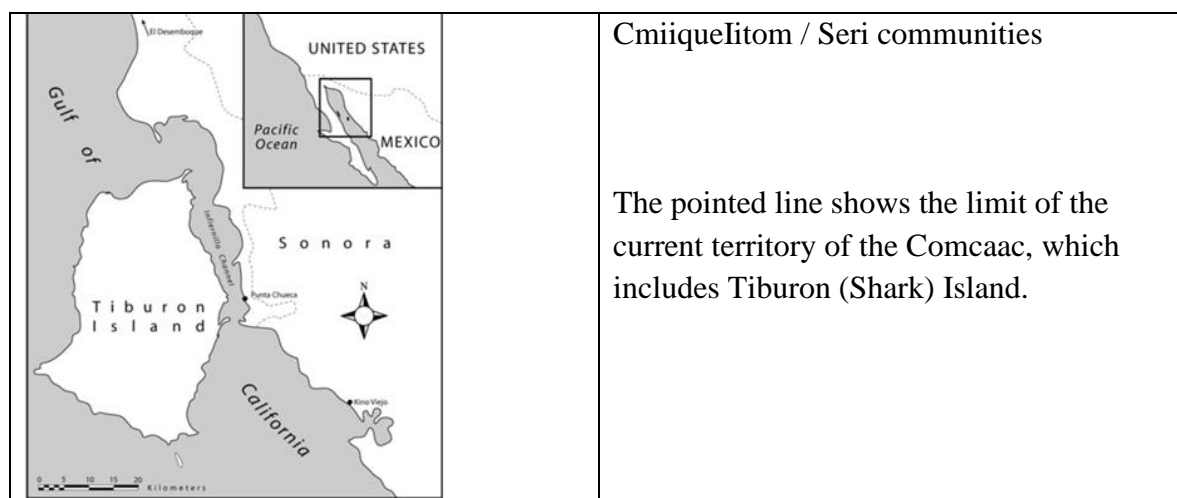
Thus, the key elements we address here are:

- the importance of working horizontally with members of the community;
- the centrality and relevance of local culture and language and their value to members of the community;
- the use of digital technologies in a controlled fashion to prevent misuse of information and allow for the language and culture to enter the digital world enhancing its potential for being preserved and creatively used by speakers of the language.



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**Figure 1.** Map of Seri communities in North-Western Mexico (Basurto, 2018).

What follows is a presentation of the members of the Comcaac collective group about their language and ethnic group:

*Greetings. We are Gladys, Jessica, René, Julia, Debora and Blanca. We are the Comcaac. We are not the Coscar (non-Seri Mexicans). We live in our own territory. We have our own language. In previous times, there were many more of us, but now we only currently live in two small villages: in Socaaix (Punta Chueca) and Haxölliom (Desemboque). Our language is called Cmiiquelitom (Seri) and linguists say it is a language that is not related to any other language spoken in the world.*

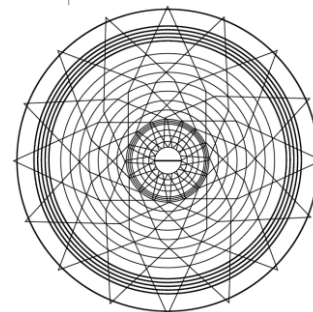
*The local economy is sustained by various activities. The men fish and maintain themselves by selling the products that they obtain by fishing, while the economy of the women is based on the sales of their woven baskets, shell necklaces that they make, and ironwood carvings of their making.*

*To preserve the knowledge that we have regarding animals that live in the sea, songs we have about them, the behaviour of other animals, our stories, our language cmiiquelitom, we need to be able to transmit them in classes and we need to strengthen the language through new technology through computers and cell phones.*

As we can glean from the statement of the community members who are part of the project, there is a clear consciousness of the need to use digital technologies to ensure the permanence of their language and ways of seeing the world.

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**Picture 1.** Members of the Comcaac collective group working in the digital literacy and language maintenance project.

### The Project

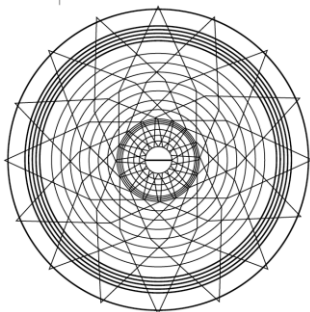
The project “Intercultural workshops for writing and edition for the creation of digital teaching materials in Cmiiquelitom (Seri) language” is financed by the National Council for Humanities, Science and Technology (CONAHCyT) of Mexico, an institution that has shifted its attention to focus on strengthening relevant educational practices geared to promote language and cultural revitalization processes, while, at the same time, encouraging novel practices linked to digital technologies.

The primary purpose is to boost literacy and digital literacy practices among members of the project’s collective, students at the elementary, middle and high school levels, teachers and families of the communities at large.

As a project based on horizontality, it is conducted collaboratively with the Seri/Comcaac cultural and linguistic promoters, in three strands of action:

- a) to establish a pedagogical framework for literacy development in Cmiiquelitom using technology that is culturally grounded,
- b) to select materials that reflect oral genres of the culture,
- c) to develop digital teaching materials collaboratively that integrate literacy practice in Cmiiquelitom in both a structural educational environment as well as an informal one, primarily aimed at, but not limited to, middle-school goers.

Let us discuss these strands and how they work together as a coherent strategy for enhancing language maintenance with younger generations of community members exposed to digital media.



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a. The pedagogical framework for literacy development in Cmiiquelitom was established and worked on collaboratively with members of the collective group. Informed by theories of language use and sociolinguistic frames of analysis (Byram, M. (1997); Council of Europe (2020); Risager, K. (2011), cultural and semiotic views of the relationship between language and culture (Müfin S. (2007)); (Nigh, R. and Bertely, M. (2018)), interactive perspectives on literacy development as well as situated and reflective educational practices (Bennett Ruth, Mattz Pam, Jackson Silish, Campbell Harold. (1999)); (Feldes, J. M. (2017)); based on projects and tasks (Richards, J. (2006)), several products were developed as a training strategy for members of the collective that would feed into the general project:

- A basic program for learning Cmiiquelitom as an additional language based on social practices of language and cultural norms. The methodology is based on what we call a “nuclear” version of the communicative approach, as it reduces the activities to its bare minimums reflecting the semiotic-pragmatic elements of the language and takes into account sociolinguistic and epistemological features of the language.



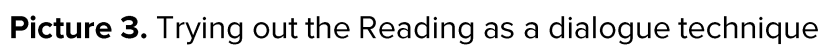
**Picture 2.** Trying out interactive techniques for learning Cmiiquelitom with a communicative perspective.

- A map of the community to identify the relevant symbolic spaces while at the same time introducing the notion of space as central to working with language, and to identify the uses of the language (oral and written) in different social spaces. This activity is inspired by situated methodologies, plus a focus on the importance of defining social and semiotic space.

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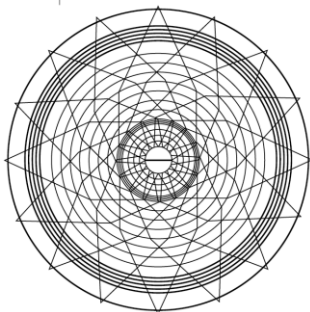
- A technique for working with reading as dialogue and process of interpretation of referents according to context, thus, focusing not on the individual elements of the alphabet, but on the relationship between form, meaning, use and processes of interpretation.



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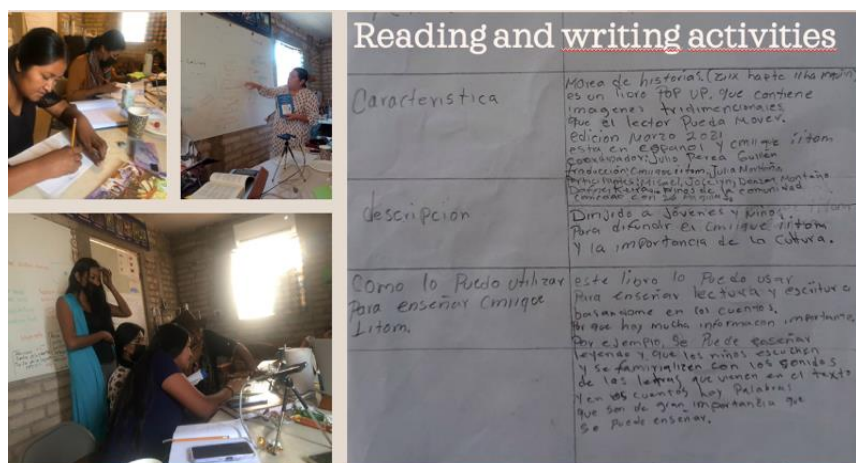
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- A “Socionatural calendar”, that reflects the different activities carried out communally at different moments of the year. Here salient elements emerge, such as the centrality of the fishing practices and the meaning imbued on each element, the different ways to conceive the passage of time, defined by the winds, and the Comcaac New Year, which takes place in the month of July. This calendar, developed and illustrated by the members of the collective, is then proposed as a means to introduce cultural and linguistic contents into the classroom.



**Picture 5.** Developing a socionatural calendar to feed into an intercultural curriculum.

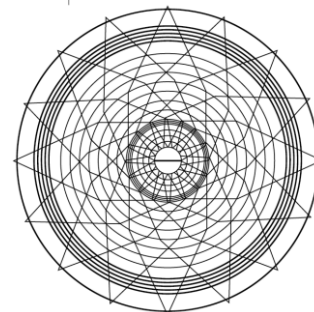
- Series of reading and writing activities linked to texts previously written down from oral recordings of different oral genres, translated and glossed into Spanish, reflecting different oral traditions, including stories and legends, cultural procedures, such as basket weaving, knowledge about nature, astronomical phenomena and other information, recipes, etc. (Marlett, S. 2020)



**Picture 6.** Reading and writing activities based on transcribed oral genres.

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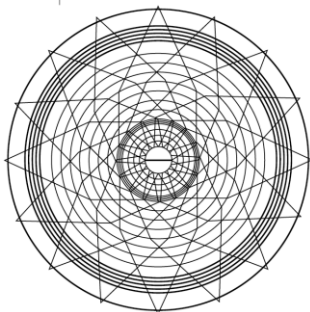
**Picture 7.** Collage of activities that reflect the different processes of teacher development.

b. The selection of materials that reflect oral genres of the culture was worked on with the same procedure as the teacher development process, ensuring the constant dialogue between the researcher and the members of the collective. The aim of this strand is to use the trove of texts gathered over several decades by linguists documenting the language and oral traditions. (Marlett, S. 2010, 2020; O'Meara 2015). Based on transcriptions of recordings, the texts reflect oral language which is adapted for a written medium. The team working on this project chose 5 texts in this first stage, to adapt and prepare to be published for children of the community. These 5 texts were subsequently illustrated by students of one of the institutions collaborating in this project.

The texts were chosen with the following criteria in mind:

- Easy for children of different ages to grasp and enjoy.
- Revealing of underlying values and views of the world.
- Culturally important information.





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These five texts were:

Name of the text	Type of text
How the rabbit jumped over the moon	Text about animals (legend)
How the “pinacate” fooled the coyote	Text about animals (legend)
How the rabbit fooled the coyote	Text about animals (legend)
About the big fish	Historical narrative
How to make a basket	Manual

**Figure 3.** List of texts adapted and genres.

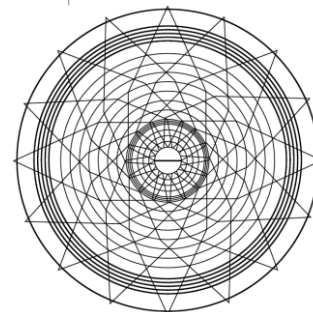


**Figure 4.** Examples of illustrations of adapted texts.

c. Regarding the third strand, since the objective of one of the lines of work is the creation of didactic and digital material in Cmiiquelitom (Seri), the research on the interaction between speakers of Cmiiquelitom and digital media was oriented to explore and describe five main dimensions: their satellite internet connection and access to electronic devices; their use of digital writing sheets, for example: Microsoft Office WORD; their use of blogs, video communication platforms, such as ZOOM, and cloud storage; their use of digital editing programmes such as Paint, and/or cell phone editors; and finally, how they acquire their media and digital knowledge. This strand of the project was informed by

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approaches to indigenous digital literacy as seen in publications such as Johnson, G. M. (2016); Li, K. Y., Zahiri, M. A., & Jumaat, N. F. (2020); Prayaga, P., Rennie, E., Pechenkina, E., & Hunter, A. (2017) and Miranda, O, et. al (2023), among others.

Previous efforts in this direction have focused on creating an audio and video repository of community stories, tales, and/or legends, intending to transform them into a digital educational resource at cmiiqeeitom. As a first effort, the Tecnológico de Monterrey, Campus Estado de México (TEC CEM) students used this material to explore its didactic possibilities, transforming it into a digital educational resource in Spanish. This was done by our partner, friend and member of the Seri language-speaking team, Débora Raquel.

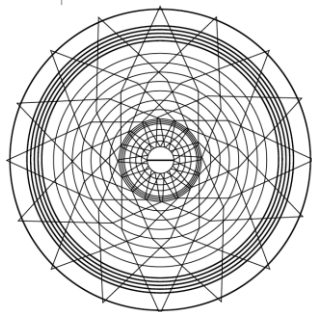
Work teams were established between the students, and each team worked on a digital educational resource:

- a memory game;
- a story with activities;
- a podcast;
- a guided drawing;
- word searches and digital crossword puzzles;
- a video with dialogue and music.

Educational resources are varied and demand different skills and digital media. For example, the memory game, the word search puzzle, and the crossword puzzle were made on a freely accessible webpage; the podcast was recorded on ZOOM, and later the recording and music were mixed on digital editing software; in regards to the story with activities, it was done in CANVA; the guided drawing and the video with dialogue and music were made with the help of a green screen, music and an editing programme to mix everything.

### **Conclusion**

Recently (May 12 and 13, 2023) a seminar was organized whereby the results of the first stage of the project were presented and worked on with the members of the collective group, teachers and authorities of the elementary school of Punta Chueca as well as educational authorities of the State of Sonora, linked to the subsystem of Indigenous Education. The aim was to bring together the three strands into a coherent whole, transmitting to teachers and educational authorities, the importance of setting the stage for a well grounded project that strengthens values, knowledge and language entering the digital realm precisely to enhance this process and not to destroy it as may be the case since more and more children are drawn to the digital media and become involved with games that make the Comcaac language and culture seem irrelevant. The seminar was a



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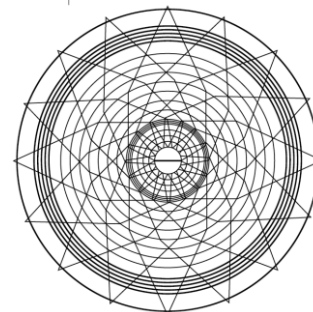
success as invited guests were able to work with concrete applications of products created, enabling teachers to plan ways to integrate ideas into their own classrooms, and for educational authorities to envision how to generate the activities and procedures to enhance indigenous cultures and language through digital media in other communities and other languages in the State of Sonora.





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**Pictures 8, 9 and 10.** Collages of activities carried out in the seminar where members of the applied research collective, teachers of the Punta Chueca schools, and authorities of the Ministry of Education of Sonora came together to become familiarised with the approaches and to receive feedback from them.

Thus, we believe our work will contribute to working with digital media towards the common good.

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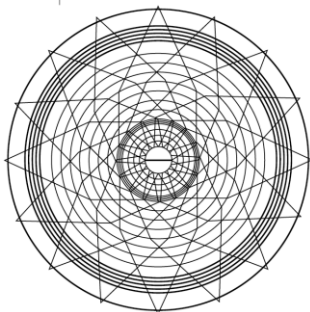
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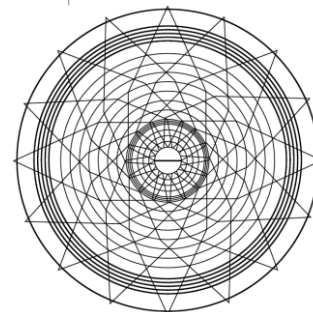
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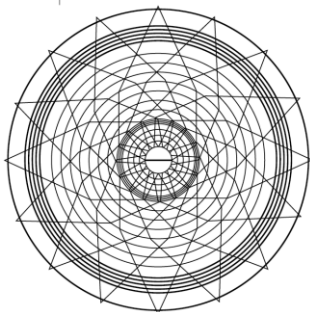
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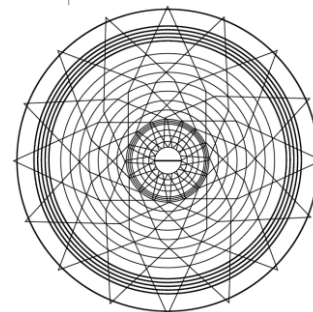
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*Digital Literacy and Language Maintenance:  
The Case of the Seri language (Mexico)*



## ЦИФРОВАЯ ГРАМОТНОСТЬ И СОХРАНЕНИЕ ЯЗЫКА НА ПРИМЕРЕ ЯЗЫКА СЕРИ (МЕКСИКА)

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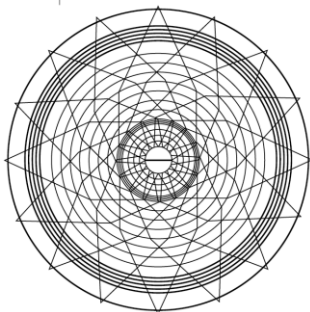
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### **Аннотация:**

В этой статье описывается проект, который реализуется на северо-западе Мексики, в штате Сонора, совместно с сообществом индейского народа сери (Сотсаас на языке сери), основанный на цифровых материалах и методах обучения грамоте, которые актуальны с культурной точки зрения и способствуют не только укреплению языка коренных народов в молодежной среде, но и распространению их культурных ценностей, практик и мировоззрения. Проект финансируется Национальным советом по науке и





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технологиям (CONAHCyT)<sup>2</sup>, в своей деятельности он фокусируется на формировании горизонтальных связей между членами сообщества, преподавателями и учеными, а также создании мощной цифровой платформы с заданиями и интерактивными материалами, которые активно используются, создаются совместными усилиями на основе культурных ценностей этой уникальной этнической группы.

**Ключевые слова:** цифровой, Интернет, расширение прав и возможностей, искусственный интеллект, Индия, многоязычный, цифровое неравенство

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<sup>2</sup> Исп. Consejo Nacional de Humanidades, Ciencias y Tecnologías – Национальный совет по науке и технологиям – децентрализованное государственное учреждение федерального правительства Мексики, отвечающее за продвижение научной и технологической деятельности, разработку государственной политики в этих вопросах и предоставление стипендий для обучения в аспирантуре.  
Прим. ред.