



<https://doi.org/10.48417/technolang.2024.03.08>

Research article

Textiles, Techniques, Technologies: Exploring Post-Ancestrality and Contemporary Practices

María José Ríos Araya  

Vestibles an independent researcher platform, Universidad de Chile, Av. Libertador Bernardo O’Higgins
1058, Santiago, Chile

lelex76@gmail.com

Abstract

This article presents an ongoing research project that explores the convergence of textile weaving and digital coding. Drawing from the Latin origin of the word “text” (textum, meaning “woven”), the investigation examines how ancestral weaving practices have served as a means of transmitting knowledge and storytelling across different cultures. The research delves into the material and linguistic parallels between weaving and writing, focusing on thread, knot, and unraveling elements. This study bridges analog and digital techniques through a speculative approach, transforming lines, fibers, and codes into a hybrid textile surface that merges the physical and virtual. The research has been channeled into several projects, where the fusion of tactile materials and digital coding is used to create innovative narrative forms. The article highlights how these interdisciplinary projects reimagine coding as a new form of language, expanding the boundaries of storytelling in contemporary art practice.

Keywords: Textile writing; Analog-digital narratives; Weaving and coding; Materiality in storytelling; Speculative design

Citation: Ríos Araya, M. J. (2024). Textiles, Techniques, Technologies: Exploring Post-Ancestrality and Contemporary Practices. *Technology and Language*, 5(3), 106-121.
<https://doi.org/10.48417/technolang.2024.03.08>



© Ríos Araya, M. J. This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/)




УДК 81`22 : 677.024

<https://doi.org/10.48417/technolang.2024.03.08>

Научная статья

Текстиль, техника, технологии: Изучение традиций прошлого и современных практик

Мария Хосе Риос Арайя  

Чилийский университет, пр. Либертадора Бернардо О'Хиггинса, 1058, Сантьяго, Чили

lelex76@gmail.com

Аннотация

В этой статье представлен текущий исследовательский проект, который исследует конвергенцию текстильного ткачества и цифрового кодирования. Основываясь на латинском происхождении слова “текст” (textum, что означает “сотканный”), в исследовании рассматривается, как древняя практика ткачества служила средством передачи знаний и рассказывания историй в различных культурах. В исследовании рассматриваются материальные и лингвистические параллели между ткачеством и письмом, особое внимание уделяется элементам нити, узла и распутывания. Это исследование объединяет аналоговые и цифровые технологии с помощью умозрительного подхода, преобразуя линии, волокна и коды в гибридную текстильную поверхность, которая объединяет физическое и виртуальное. Результаты исследования были использованы в нескольких проектах, где сочетание тактильных материалов и цифрового кодирования используется для создания инновационных повествовательных форм. В статье рассказывается о том, как эти междисциплинарные проекты переосмысливают кодирование как новую форму языка, расширяя границы повествования в практике современного искусства.

Ключевые слова: Текстильное письмо; Аналого-цифровые нарративы; Ткачество и кодирование; Материальность в сторителлинге; Спекулятивный дизайн

Для цитирования: Ríos Araya, M. J. Textiles, Techniques, Technologies: Exploring Post-Ancestrality and Contemporary Practices // Technology and Language. 2024. № 5(3). P. 106-121. <https://doi.org/10.48417/technolang.2024.03.08>



© Риос Арайя, М. Х. This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/)



INTRODUCTION

“Text” originates from the Latin *textum*, meaning “woven.” Across various cultures, this ancestral practice served as a medium to transmit beliefs and wisdom, intertwining storytelling with both material and linguistic elements. Writing, much like weaving, borrows concepts from manual textile production terms like thread, knot, link, and unraveling emphasizing the interconnectedness of language and textile craft.

This project (2023 to present) explores the intersection of these practices through a speculative approach, combining analog and digital techniques. It examines how line, thread, materiality, fiber, and code can be transmuted to create a textile surface that integrates both physical and virtual elements. The project bridges tangible, sensory experiences with the intangible world of digital coding, emphasizing narration as a dynamic, hybrid process. By weaving analog-digital narratives, the project reimagines coding as a form of language and writing, offering new perspectives on storytelling in contemporary artistic practice.

WRITING AND CODING IN LANGUAGE

Writing is a system of visual representation of spoken language. Theoretically, writing encodes language using graphic symbols, such as letters or characters, that represent phonemes, morphemes, and words.

This coding system allows for preserving, transmitting, and communicating ideas, thoughts, and knowledge across time and space.

According to Roland Barthes (1973) in *The Pleasure of the Text*, writing can be seen as an act of coding that transforms language into a system of signs that readers must interpret. Barthes emphasizes that writing is a form of cultural and social coding, carrying with it a system of meanings that must be deciphered by the recipient.

In many ancient cultures, weaving was a medium for transmitting knowledge and telling stories. The patterns and techniques of weaving served to communicate and preserve cultural information, similar to how written text preserves and transmits knowledge.

A prominent example of this interrelationship is the quipu, a recording system used by Andean peoples such as the Incas. “The quipu consisted of strings and knots of various types and colors, used for keeping accounts and recording important information. Each knot and each string had a specific meaning, and the way they were organized conveyed data in a complex and detailed manner” (Urton, 2003, p. 223).

As explored by Reyes (2015) and Gárate (2008), the use of threads and knots in the quipu exemplifies the intrinsic connection between weaving and coding. Similarly, textual construction can be understood as a process of interweaving linguistic elements to form a narrative fabric. Thus, both weaving and writing can be seen as practices that create and transmit meaning through the organization of their material and symbolic components.

From this perspective, weaving can be considered a unique territory and medium for narrating the human experience, functioning as a medium that not only records but also intervenes in our existence in sensory, rational, and cognitive ways. This viewpoint



positions weaving as a fundamental tool for constructing personal and collective narratives, starting with the tactile gesture of hand-to-surface contact and extending to the creation of coding on, over, and for the surface.

The use of threads and knots in the quipu exemplifies the intrinsic connection between weaving and coding. Similarly, textual construction can be understood as a process of interweaving linguistic elements to form a narrative fabric. Thus, both weaving and writing can be seen as practices that create and transmit meaning through the organization of their material and symbolic components.

From this perspective, weaving can be considered a unique territory and medium for narrating the human experience, functioning as a medium that not only records but also intervenes in our existence in sensory, rational, and cognitive ways. This viewpoint positions weaving as a fundamental tool for constructing personal and collective narratives, starting with the tactile gesture of hand-to-surface contact and extending to the creation of coding on, over, and for the surface.

Threads as Narrative Lines

Each textile thread can be seen as a narrative line that, when interwoven with others, forms a network of stories. This network is not static; it adapts, intertwines, and transforms as it interacts with its environment and users. In this sense, weaving becomes an active medium that not only documents lived experiences but also participates in their narration.

Each thread writes its own story, and as these threads come together and form patterns, they create a visual narrative that reflects both individuality and collectivity. The act of weaving is more than a manual action; it is a way of inscribing experience into a tangible format. The interweaving of threads can symbolize emotional connections, shared stories, and collective experiences.

Furthermore, weaving does not act merely as a passive record but possesses an inherent capacity to interact and respond. The way stitches are arranged and how the fabric responds to the user's actions or environment demonstrates a dynamic interaction. This interaction can be literal such as a fabric that changes color with temperature or symbolic, reflecting the personal history of the wearer through patterns and designs.

The fabric layer that covers and envelops us profoundly impacts our perception of space and time. This layer not only protects but also generates an experience: in contact with the body, the fabric becomes a medium for exploring and discovering our narrative. Each interaction with a textile continues to unfold our story over time and space.

“The practice of weaving in Indigenous cultures can be seen as a form of writing and narrative, where weaving becomes a medium for recording and transmitting knowledge and experiences” (Gómez, 2020).

Each stitch, pattern, and interaction with the fabric reveals aspects of our existence, allowing us to inscribe gestures, create marks, and ultimately write our narratives. Weaving becomes a narrative medium that not only records but also acts and reacts, enabling us to explore personal and collective stories within a broader context.



Weaving, as a dynamic and expressive medium, actively participates in narration. Through its threads, patterns, and interactions, it offers a rich and multifaceted perspective on our existence in time and space.

The Abstract Narrative Line in Weaving

The abstract narrative line in the context of weaving refers to how fabric and its patterns can convey meanings and stories that are not necessarily literal or figurative, but operate on a more conceptual and symbolic level. This approach views weaving as a medium for exploring ideas and emotions abstractly and also considers how this medium can be reactive and interactive. Here's how these concepts develop:

Narrative through Abstract Design Patterns and Shapes

Instead of telling a story through recognizable images or texts, weaving can use abstract patterns and shapes to convey ideas and emotions. Abstract patterns in weaving can also function as symbols that evoke deeper meanings. Each shape and combination of colors may carry cultural, emotional, or personal significance. This symbolism can be understood subjectively, allowing each observer to interpret the textile according to their own experiences and emotions.

Reactivity and Interactivity in Weaving

Fabric Reactivity: Interactive textiles can respond to external stimuli, such as changes in temperature, light, or movement. This reactivity adds a dynamic dimension to textile narratives, allowing the fabric to respond to its environment or the actions of the user.

Some fabrics are designed to change color or pattern in response to environmental conditions. For example, a fabric that changes color with temperature can symbolize change or adaptation, reflecting the variability of human experiences.

In social contexts, textiles incorporating technology can facilitate communication and interaction between people. For instance, a fabric that lights up or vibrates when near another similar fabric can symbolize the connection between individuals, fostering a narrative of community. These textiles operate within a framework of reactivities and interactivities, positioning themselves as events in themselves.

EmoTech by Studio XO (n. d.): Against this background, the EmoTech project explores the interaction between user and fabric by using LEDs and sensors to express emotions through light patterns. This project refers to an important origin of writing: the hand and its gesture of contacting a two-dimensional surface, which alludes to the act of writing, where interacting with a surface results in marks being left behind.

Knots and Knotting as Writing

Development of a Textile Alphabet: Knots can be used to represent different symbols, letters, or concepts. Each type of knot or knotting pattern can correspond to a letter of the alphabet, a number, or a specific idea. For example, a complex knot could represent a letter, while combinations of knots could form words or phrases.



Just as Morse code uses combinations of dots and dashes to convey messages, a knotting system could encode information directly into the fabric. Each knot or combination of knots would have a defined meaning, creating a form of visual communication embedded within the material.

Writing on Fabric:

The texture of textiles and their knots not only adds a visual dimension to the fabric but can also convey data and messages in a tactile way. By touching the fabric, one could feel the different knots and understand the coded message through texture.

Textile patterns could also tell stories or convey abstract messages. Just as traditional textiles narrate events through their patterns and colors, fabrics with specific knots could convey myths, events, or complex concepts through their structure. Including an example or illustration here would help readers visualize how knots serve as a form of communication.

A Dynamic Visualization

Data Visualization: Knots could be used to visualize data in real-time. For instance, a fabric that changes its knot pattern based on the user's biometric data could provide a visual representation of their emotional or physical state. Here lies a dilemma: Is this writing? Or is it merely mapping or representation? Nonetheless, it is possible to develop something that visually, interactively, or sonically becomes writing, a form of narrative writing.

Inventing a Knotting System: The creation of a knotting and stitching system as a form of writing or alphabet offers a new dimension to the narrative. By merging traditional knotting techniques with modern concepts of interactivity, technology, and narrative vocabulary, this system could expand the possibilities of encoding and communicating information in contemporary textiles. This approach could transform fabric into a multifaceted medium that integrates abstraction, functionality, and interactivity.

Relationship with Writing and Coding in the Chilean Context

In the Chilean context, the influence of ancestral textile techniques, such as the quipu and especially Mapuche textiles, can serve as a basis for experimentation with new forms of writing and coding. Traditional textiles and their knotting techniques can be reinterpreted in contemporary projects to explore the relationship between weaving, writing, and technology. This approach not only honors ancestral cultural practices but also opens pathways for new forms of communication and expression at the intersection of textile and digital.

Studying knots and their application in ancestral textile symbolism (both visual and tactile) provides valuable insights for research and innovation in the field of textile coding. By combining traditional techniques with modern technologies, it is possible to develop systems that enhance our understanding of narrative and communication, preserving cultural heritage while exploring new creative possibilities.



COMPARISON BETWEEN QUIPU AND MAPUCHE WEAVING:

Quipu: ancestral writing system

The quipu is a recording and communication system used by the Inca civilization and its predecessors in the Andes. Its primary function is to store and transmit information, distinguishing it from Mapuche textiles, which focus more on aesthetics and cultural tradition. According to García (2005), the quipu can be considered a form of writing where the knots and the arrangement of the threads allow for effective information encoding.

In the context of ancestral Andean textile techniques, knots and knotting have significant relevance that transcends mere technique; they reflect a form of writing that serves essential communicative functions (Araya, 2017). These elements are not only integral to textile production but also play a crucial role in encoding information.

Today, the relationship between knots, weaving techniques, and writing remains relevant, especially in exploring textile technologies and their integration with digital systems. Creating a textile alphabet based on knots could offer a new dimension to encoding and storytelling, merging traditional techniques with modern methods. For example, a knot-based system representing alphabetic characters or symbols could allow for the creation of texts and messages in a textile format. This perspective expands the possibilities of textile writing beyond simple visual representation, integrating interaction and material reactivity.

The Quipu as a Writing System

The quipu is one of the most prominent examples of how knots were used as a writing system in Andean cultures, particularly the Inca civilization. This system consists of cords of different colors and types, with knots placed in specific positions, used to record and transmit complex information. Each knot and its placement on the cord represent units of information, such as figures, dates, and other important data for administration and historical memory (Urton, 2003). As Bengoa (2000) notes, the complexity of the quipu reflects the advanced social organization of Andean peoples, where information coding was fundamental.

The Meaning of Knots in Textile Writing

Knots in the quipu can be seen as a type of textile alphabet, where each knot configuration and cord arrangement carries a specific meaning. This type of encoding is similar to writing in that it converts abstract information into a visual and tangible form. In this sense, the quipu preserves and transmits information and acts as a communication medium that transcends conventional spoken and written language (Salomon, 2004).

The quipu requires specialized interpretation to decipher the encoded information in the knots, making it a powerful (textile) tool for encoding and recording administrative and numerical information. In contrast, Mapuche weaving involves an aesthetic, functional, and cultural expression. While the use of knots and cords in the quipu is for precise and structured information encoding, Mapuche textiles use patterns (stitches and techniques) and braids to create decorative and functional designs, without a coded information system, but with symbols reflecting their environment and beliefs.



Structure and Components:

Cords and Knots: The quipu consists of main and secondary cords with knots in various positions and configurations. The cords are tied to a main cord, and the sequences and types of knots in each secondary cord encode different types of information.

Colors and Lengths: Cords can be of different colors, with each color potentially representing specific information categories. The length of the cords can also carry meaning.

Function and Use

Data Recording: The quipu was used to record numerical data, such as tributes, censuses, and other administrative information. Each knot and its location on the cord had specific meanings that could be interpreted by individuals trained in reading quipus.

Communication: Quipus could also serve as a means of communication between different regions of the Inca empire, allowing the transfer of information without an alphabetic writing system.

An example is the Llama Quipu, found in the Andean region, which shows a series of cords with knots that, when interpreted, reveal information about tributes in the form of counts of llamas and other resources. “In Andean cultures, weaving has become a fundamental medium for storytelling and preserving cultural memory, where each pattern and color has symbolic and communicative functions.” (Quintana, 2014)

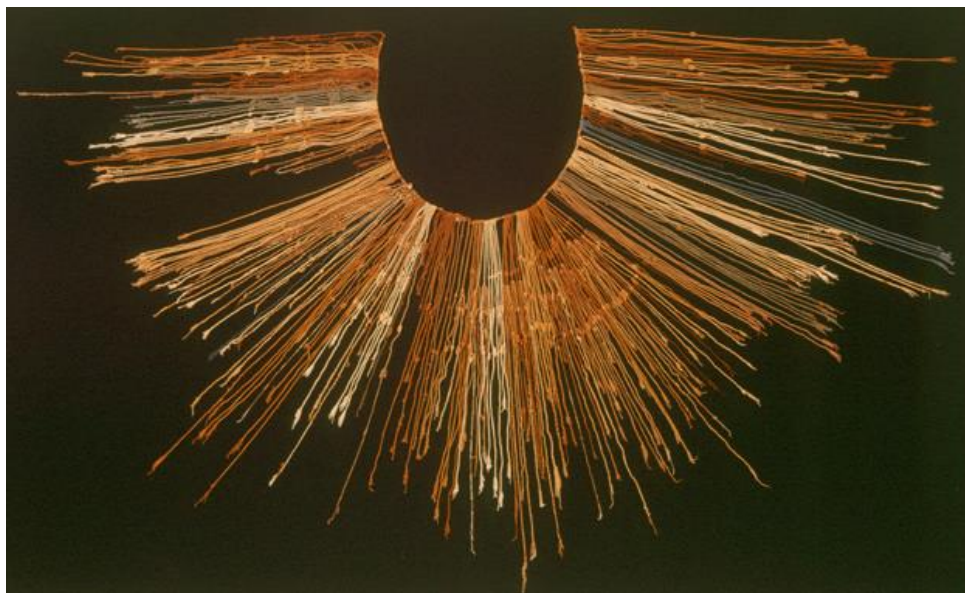


Figure 1. An example of an Inca quipu used for recording information (photographer Claus Ableiter from the Larco Museum in Lima)

According to Villalba (2015), “Although the quipu is not a phonetic form of writing, meaning that knots, colors, and threads do not represent sounds, it can be considered a system of graphic notation in a broader sense: it is a set of visual or tactile marks, arranged



to enclose and transmit data. It is, in fact, a three-dimensional notation system: the twists, knots, and color combinations store and transfer information” (para. 2).

Mapuche weaving: techniques and meanings



Figure. 2. Hotel Mapuche, Nueva Imperial, Chile, 2020. Association Indígena Wallontu Witrál (n. d.).

Like Reyes (2015) and Salomon (2004), Gárate (2008) emphasizes the symbolic and communicative dimensions of textile practices, specifically focusing on the Mapuche context. Gárate delves into the dual nature of Mapuche textile practices, addressing how traditional weaving techniques are preserved while simultaneously adapting to modern influences. His work provides a comprehensive view of how Mapuche artisans navigate this intersection, highlighting the significance of cultural heritage in contemporary textile art.

In this context, Mapuche weaving includes techniques such as **peneñel** and other braiding methods that use threads to create aesthetic and functional patterns. Although the threads forming iconography in Mapuche weaving do not have the same information encoding function as the quipu, they are fundamental to Mapuche textile art. The following are its key characteristics:

Structure and Components:

Stitches and Braids: Mapuche textiles may incorporate braiding techniques to shape the fabrics. These textiles do not encode information in the same way as the quipu but contribute to the textile structure.



Designs and Patterns: Designs in Mapuche textiles often carry cultural and symbolic meanings, and patterns can vary depending on the region and tradition.

The traditional **küpam**, a rectangular wool cloth, can be seen in Fig. 3. It is worn by covering the body and fastening it at the shoulder with a pin. It is also complemented by a shawl called **ukulla**, which covers the back, and a decorated belt known as **trarüwe**, tied around the waist. In recent times, we have also observed the addition of a fabric apron.



Figure 3. Rectangular wool cloth is known as **küpam**, which covers the body and is fastened at the shoulder with a pin (Hitega, n.d.)

In terms of aesthetics and tradition, Mapuche weaving is used to create blankets, belts, and other items with cultural and aesthetic significance. Weaving and braiding techniques contribute to the appearance and durability of the textiles. Each type of stitch or method of weaving, known as the Mapuche knot, can convey specific meanings, functioning as a form of cultural coding.

The combination of these knots conveys socio-cultural messages, reflecting a non-textual form of writing where meaning is constructed through the arrangement of patterns rather than letters. Colors in Mapuche textiles also carry clear symbolic meanings: **blue** refers to abundance and the order of life, yellow signifies knowledge and the four cardinal points, **red** represents power and strength, **green** symbolizes nature and the earth as sources of abundance, and **white** stands for wisdom and prosperity.

Main symbols include the **Wünelfe**, representing **Venus as a four-pointed star**, the **Ketru metawe**, a symmetrical jar given to women or used for gifts, and the **Lukutuwe**, an anthropomorphic symbol used in women's clothing representing reincarnation.

Ceremonial blankets, such as those used in the "**Ñhielün**" (**Earth Ceremony**), are designed with specific patterns to embody protective spirits or sacred elements. Colors like white may symbolize purity and divinity, while blue may be associated with the sky or water, and green with vegetation and fertility.

Braided belts often feature motifs of **Ñuke Mapu (Mother Earth)** or **Antü (the sun)**, telling stories of creation, ancestral legends, or important historical events. Geometric shapes such as triangles or spirals often symbolize the connection between the material and spiritual worlds.



These blankets are not merely functional textiles for warmth, but they also hold deep cultural and spiritual significance within the Mapuche community. The blankets, woven with specific patterns and colors, often represent important aspects of Mapuche cosmology, such as the connection to nature, sacred elements, and ancestral forces.

Peneñel is a technique involving various ways and combinations of layers on the warp threads to form patterns, but not exactly like the knots used in quipu. In peneñel, the purpose is more aesthetic and structural rather than informational, creating textiles that carry deep cultural meanings. This complex pattern coding makes peneñel a form of textile “writing,” where the arrangement of threads (weft, warp, and their layers) is used to tell stories, convey myths, and communicate important concepts for the community.

Peneñel can be considered a language in itself, where each thread and its placement within the overall pattern has a specific meaning that can be “read” by those who understand this code. “This coding system is similar to other textile writing systems, such as the Incan quipu, where knots in cords of different colors and thicknesses were used to record data and communicate important messages.” (Urton, 2003).

However, in the Mapuche context, peneñel has an even broader function, as it is used not only to record quantitative information but also to express abstract and spiritual ideas. Each pattern of knots in a peneñel can symbolize different aspects of Mapuche's life and worldview. For example, certain patterns represent natural cycles, such as the seasons or lunar cycles, while others encode ancestral legends or fundamental ethical principles. “Textiles with peneñel are intended for ceremonial purposes, where the designs used in a textile are chosen to invoke protection, prosperity, or to honor ancestors” (Bacigalupo, 2007).

“Visual, tactile, and kinetic learning gradually ascends until reaching the stage where their ñeren (weaving) achieves a natural and innate expression, in which all their kimu (wisdom) is poured and embodied. The magical concepts related to their cosmogony are also present here, to facilitate learning and crafting the pieces” (Conejero, 2015).

These coding techniques also reinforce the Mapuche's cultural identity and their resistance to cultural assimilation. In a world where alphabetically written communication dominates, **peneñel** represents an alternative way to preserve and transmit knowledge that is intimately connected to the land and Mapuche culture. Through this technique, Mapuche women, in particular, have played a crucial role in passing on knowledge and values to future generations, ensuring the continuity of their cultural heritage in a format that resists standardization and simplification (Durán & Ortiz, 2016).

Despite the rich cultural significance of techniques like peneñel, there remains a scarcity of references and literature documenting its intricacies. This challenge is compounded by the tendency of search engines to yield limited results for terms like “peneñel,” while more widely recognized symbols such as Wünelfe are readily available. This disparity highlights the need for further scholarly attention to lesser-known aspects of Mapuche textile art, ensuring these vital cultural practices are preserved and understood.



INTEGRATION WITH CURRENT TECHNOLOGIES

Analog-Digital Interactivity and Reactivity

As part of **Vestibles**, a research and development platform founded in 2015 in Santiago, Chile, the project **TTT** was presented on November 23. This project, in summary, explores the concepts of analog and ancestral weaving to digital interactivity, data visualization, and sonification. The goal is to develop a coding and information transfer system, continuing to evolve a type of code that transforms the textile into a form of writing, connecting the analog thread line with the digital screen line. Thus, from a horizontal textile surface abstractly symbolizing Chile's climatic landscape, this textile measures 230 cm in length and 35 cm in width, divided into four color zones according to the climate of the regions: North, Central, South, and Austral or Extreme South.

The piece is equipped with two MPR121 capacitive touch sensors and an ESP32 digital board with 12 output channels from each sensor. These channels are expanded with copper threads ending in nine Andean wrapping techniques made of conductive thread. When touching each zone, the screen displays data on touch proximity in the form of straight lines with specific color, angle, and length determined by the zone and manner in which the textile was touched.

This visualization forms a star with 24 possibilities for color, size, length, and position (angle): the star (Fig. 4), a universal element, represents an essential and historical aspect of ancestral textile knowledge and iconography of our territories. It also abstractly symbolizes an Andean textile termination called **La Borla** (Fig. 5), used to adorn animals and for festive and ornamental textiles.



Figures 4 and 5. This visualization forms a star with 24 possibilities for color, size, length, and position (angle): the star (Fig. 4), a universal element, represents an essential and historical aspect of ancestral textile knowledge and iconography of our territories. It also abstractly symbolizes an Andean textile termination called **La Borla** (Fig. 5), used to adorn animals and for festive and ornamental textiles.

In this project, the audience generates a cyber-textile by touching the textile through the thread line, producing a finish. This visual and tactile interaction involves transcoding data visualization from a grid (invisible but always latent).



Thus, this interaction is a demonstration of physical-digital relationship and intersection, aligning with the (hidden) concepts of a possible writing system, from the thread that enables the line to form shape, then color, directions, and thus graphic information.

For the project TTT, which is evolving into its second and final version, the development will build upon its initial framework. The advanced iteration will introduce 27 or more audiovisual possibilities corresponding to the letters of the Spanish and English alphabets, as well as additional symbols such as spaces and punctuation marks. The primary base for interaction will be the asterisk, initially offering 24 variations in lines, colors, sizes, and positions based on touch inputs on the fabric.

Users will be able to write letters, phrases, or words on the textile via the project’s website, accessible from both mobile phones and computers. The system will capture and store this input to be displayed on a black-and-white textile produced by a small digital mechanical loom. The project will also integrate sound elements generated through touch, adding another layer to the interaction.

These visual and material elements expressed through line, color, and essence (black and white) will be connected to future sound projections, enhancing the modes of reading and reflecting on experimental writing. This progression aims to explore new codifications necessary for innovative forms of textual expression related to the textile medium (Fig. 6).



Figure 6. These visual and material elements expressed through line, color, and essence (black and white) will be connected to future sound projections, enhancing the modes of reading and reflecting on experimental writing. All from the web: other interactive media. TTT Project, when the horizontally woven textile is touched using a traditional loom. A touch-sensitive textile visualizes the data. BETA version.

The cord as the Line, Origin of Drawing, Writing, and Form: Everything that draws, writes, and constitutes a narrative content to be read and subsequently communicated visually (in this case).

The cord as the essential component and material of weaving and Textiles:

Through the structure formed by the warp and weft, the textile is created. The interrelation of these elements forms the textile with blocks of shapes, colors, and arrangements.



The cord transformed into Form: Hieroglyphic writing from the Neolithic period used drawn forms to represent objects through stone carvings. It is also important to reference the complex Cuneiform writing system, a type of graphic system that is more than just alphabetical.

In this way, the simple element of the rope generates the form, which is then colored and mobilized to be arranged in various directions.

The figure 7 contains 2 images:

Textile Tassel (borla): Pom-pom and Andean ornamentation used in festive and ceremonial contexts. The textile features intricate pom-pom decorations that highlight Andean craft traditions' vibrant and symbolic nature. **Andean Chuspa (bag):** This bag dates back to the Pocoma-Gentilar Phase (1250 - 1450 A.D.) and exemplifies the traditional weaving techniques and design elements used by the Andean cultures of that era. The chuspa was commonly used to carry coca leaves, a substance of cultural and ritual significance, and its elaborate design reflects both functional and aesthetic aspects of Andean textile artistry.



Figure 7. Textile Borla: Pom-pom and Andean ornamentation and festivity finishing. b. Andean Chuspa (bag). Period: Pocoma-Gentilar Phase 1250 - 1450 A.D.

CONCLUSION

Several questions arise: How might we, as creators and researchers, narrate or generate ideogram-like writing in the future? How can we assimilate other ways of visualizing narratives? Textiles and weaving techniques in ancestral cultures have performed similar functions, though not as writing per se; they have been and continue to be sophisticated systems of coded information.

Writing is a technology for transmitting information to be understood, visualized, perceived, and assimilated. Is an alphabet necessary for writing, or is writing, in some



way, about encoding information? The narrative line of abstraction in textiles explores and expresses concepts beyond the literal. Combining this abstract narrative with possible interactivity could create a rich, multidimensional experience that is both introspective and socially significant. Thus, textiles become a medium for self-expression and connection in innovative, more sensory, and exciting ways.

In conventional writing, signs and symbols use letters, numbers, and other graphic signs to represent phonemes, words, or concepts. These signs have phonetic or semantic value that facilitates verbal and written communication. Conventional writing systems, such as the Latin alphabet, are based on grammatical and orthographic rules that organize how these signs should be formed and used to create coherent meanings. Most writing systems are designed to transcribe spoken sounds (phonetics) or concepts (semantics), allowing for precise and standardized communication between speakers of a language.

In contrast, systems like the quipu use knots and colors in strings to encode numerical and administrative information. Although it is also a system of signs and symbols, it does not transcribe sounds or words but conveys data through the arrangement and configuration of knots and strings. Similarly, Mapuche weaving employs patterns and colors with cultural and symbolic meanings, serving as a medium for cultural and ritual representation rather than textual encoding in the conventional sense.

In summary, while all these systems can be considered sets of signs and symbols, conventional writing is distinguished by its focus on representing and communicating sounds and words. Systems like the quipu or Mapuche weaving, however, serve different purposes and forms of coding. This raises the question: Could new languages and/or translation systems be developed to communicate and sensitize us about information transfer in innovative ways?

REFERENCES

- Araya, I. (2017). *Tradiciones y técnicas textiles en el sur de Chile* [Textile traditions and techniques in southern Chile]. Editorial Ril Editores.
- Asociación Indígena Wallontu Witrál. (n.d.). *Hotel Mapuche*. Nueva Imperial. <https://www.scielo.cl/img/revistas/arq/n109/0717-6996-arq-109-3-gf1.png>
- Bacigalupo, A. M. (2007). *Shamans of the Foye Tree: Gender, Power, and Healing among Chilean Mapuche*. University of Texas Press.
- Barthes, R. (1973). *El placer del texto* [The Pleasure of the Text]. Siglo XXI Editores.
- Bengoa, J. (2000). *Historia del pueblo Mapuche* [History of the Mapuche People]. Editorial Universitaria.
- Conejero, R. M. (2015, February 7). Llalin kushe, la araña tejedora del pueblo Mapuche [Llalin Kushe, the Weaving Spider of the Mapuche People]. *Terrae Antiquae*. <https://terraeantiquae.com/group/httpterraeantiquae.comgroupetnologaetnohistoriaetno/forum/topics/llal-n-kushe-la-ara-a-tejedora-del-pueblo-mapuche>
- Durán, C., & Ortiz, P. (2016). *Tejiendo la resistencia: Mujeres mapuche y la lucha por la tierra*. Ediciones LOM.



- García, A. (2005). La escritura del tejido: Codificación y lenguaje en la tradición textil indígena [The Writing of Fabric: Codification and Language in the Indigenous Textile Tradition]. *Revista de Antropología Cultural*, 12(2), 45–63.
- Gárate, A. (2008). *La textilería Mapuche: Tradición y modernidad* [Mapuche Textiles: Tradition and Modernity]. Editorial Universitaria.
- Gómez, M. (2020). El arte de tejer: Escritura y narrativa en el tejido tradicional. Universidad de Santiago de Chile.
- Hitega. (n.d.). Telas para trajes mapuches y principales características de su vestuario [Fabrics for Mapuche Costumes and Main Characteristics of Their Clothing]. <https://www.hitega.cl/blog/tipos-de-telas/telas-para-trajes-mapuches-y-principales-caracteristicas-de-su-vestuario/>
- Quintana, F. (2014). *Textiles y memoria: La narrativa del tejido en las culturas andinas* [Textiles and memory: The narrative of weaving in Andean cultures]. Ediciones Cormorán.
- Quintana, J. (2014). *Tejido y memoria: historias en el arte textil andino*. Editorial Universitaria.
- Reyes, M. (2015). *El arte textil Mapuche: Técnicas y significados* [Mapuche textile art: techniques and meanings]. Ediciones Universitarias de Valparaíso.
- Salomon, F. (2004). *The Cord Keepers: Khipus and Cultural Life in a Peruvian village*. Duke University Press.
- Studio XO. (n.d.). Wearable tech. Retrieved from <https://www.studio-xo.com/>
- Urton, G. (2003). *Signs of the Inka Khipu: Binary coding in the Andean knotted-string records*. University of Texas Press.
- Villalba, C. (2015, September 16). El quipu, algo más que un registro numérico [The Quipu: Something more than a Numerical Record?]. *Cultura Científica*. <https://culturacientifica.com/2015/09/16/el-quipu-algo-mas-que-un-registro-numerico/>

СВЕДЕНИЯ ОБ АВТОРЕ / THE AUTHOR

Мария Хосе Риос Арайя, lelex76@gmail.com
ORCID 0000-0001-7520-2430

María José Ríos Araya, lelex76@gmail.com
ORCID 0000-0001-7520-2430

Статья поступила 28 июля 2024
одобрена после рецензирования 17 августа 2024
принята к публикации 27 августа 2024

Received: 28 July 2024
Revised: 17 August 2024
Accepted: 27 August 2024