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Digital Revitalization and Visual Identity: Communication Pathways for Oroqen Costume Patterns as Intangible Cultural Heritage

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Abstract

Oroqen costume patterns constitute a significant visual dimension of traditional roe deer skin craftsmanship, condensing ecological knowledge, collective memory, aesthetic preferences, and cultural identity. Although digital media can expand their visibility, decontextualized circulation may reduce living heritage to detachable ornament and replace bearer-led transmission with platform-driven spectacle. Drawing on a qualitative analysis, this study integrates the living-heritage approach, visual decoding, and communication analysis to examine how digital revitalization can support visual identity. It argues that digital revitalization should not be equated with image digitization or online exposure. Rather, it should reconstruct relationships among motif, material, technique, bearer, place, narrative, and audience. The article proposes a five-part communication pathway: community-authorized digital documentation, contextual semantic translation, layered audiovisual narration, participatory and immersive co-creation, and the return of digital resources and benefits to community transmission. It further conceptualizes visual identity as a progressive process involving visual attention, semantic understanding, emotional resonance, cultural belonging, and participatory practice, while recognizing the interconnected levels of Oroqen ethnic identity, collective cultural memory, and identification with the diverse yet integrated Chinese cultural community. An evaluation framework is developed around cultural fidelity, communication effectiveness, identity formation, living transmission, and ethical sustainability. The study concludes that the value of digital communication lies not in producing a frozen "authentic" image, but in enabling Oroqen bearers and communities to interpret, transmit, and recreate their visual heritage under conditions of informed consent, cultural accuracy, and shared benefit.

Keywords

Oroqen Costume Patterns; Intangible Cultural Heritage; Digital Revitalization; Visual Identity; Participatory Communication; Cultural Memory

1. Introduction

Oroqen costume patterns are embedded in a broader system of hide processing, garment making, embroidery, social use, and cultural memory. The official description of the Oroqen roe deer skin crafting technique identifies a sequence that includes hide collection, tanning, cutting and sewing, dyeing, ornamentation, and embroidery; its products extend beyond clothing to daily and ritual objects. The same source describes these craft products as an "unwritten history" through which Oroqen views of life, aesthetics, and religion can be examined [1]. Patterns therefore cannot be treated as self-contained graphic assets. Their cultural significance arises from the interaction of visual form with material, technique, bodily use, and community recollection.

The need for effective communication is closely connected to changes in the conditions of transmission. The official heritage account notes changes in dress practices, diminishing hide resources, and the loss of experienced artisans [1]. In this context, digital photography, online archives, short video, virtual exhibitions, and interactive learning offer new possibilities for documentation and public engagement. Yet increased visibility does not automatically produce understanding or transmission. A motif copied into a design template may circulate widely while its relationship to roe deer hide, sinew thread, garment placement, artisan knowledge, and community memory disappears. The central problem is thus not simply how to make Oroqen patterns more visible, but how to make their meanings and living relationships communicable without freezing or dispossessing them.

This concern follows from the people-centered definition of intangible cultural heritage in the 2003 UNESCO Convention. Intangible cultural heritage is transmitted across generations and constantly recreated by communities in response to their environment, interactions with nature, and history; it provides identity and continuity rather than merely supplying objects for preservation [6]. Digital revitalization, accordingly, should support continued practice and recreation. It should not substitute a polished visual surrogate for the social processes through which heritage remains meaningful.

This article addresses three questions. First, which visual and cultural relationships must be retained when Oroqen costume patterns are translated into digital resources? Second, through what communicative mechanisms can digital engagement contribute to visual identity rather than momentary attention? Third, what integrated pathway can connect documentation, interpretation, platform communication, participation, and community-based transmission? The study contributes a context-sensitive model that joins visual decoding to communication design and evaluates success through identity and living transmission, not traffic alone.

2. Literature Basis and Analytical Framework

2.1. From digital documentation to digital revitalization

UNESCO's definition of safeguarding includes identification, documentation, research, preservation, protection, promotion, transmission, education, and revitalization [6]. Documentation is therefore one component of a larger safeguarding process. Recent research makes this distinction increasingly important. Wei et al.'s scoping review [8] of 102 studies organizes digital safeguarding into five interconnected stages: data collection, organization, and documentation; classification and recognition; digital restoration; digital exhibition and education; and cultural innovation. It also distinguishes conventional digitization, which primarily secures fidelity and access, from AI-based methods that support analysis, interpretation, and generation. This staged view helps prevent a common reduction in which the creation of an archive is mistaken for the completion of safeguarding.

In this article, digital revitalization refers to the use of digital tools to renew the social circulation, interpretive accessibility, and intergenerational practice of heritage while maintaining community agency. Four criteria follow. Digital resources should preserve relationships rather than only appearances; interpretation should remain open to bearer knowledge and regional variation; communication should enable participation rather than only consumption; and digital activity should create returns to community learning and cultural continuity. On this basis, a high-resolution pattern library may be necessary, but it becomes revitalizing only when connected to narratives, teaching, authorized reuse, and living practice.

2.2. Visual identity as a communicative process

Visual identity is understood here not as the instant recognition of an ethnic "logo," but as a process through which viewers and practitioners come to understand who they are in relation to a visual tradition. Qi and Shi [4] propose three connected levels for Oroqen costume patterns: at the micro level, motifs anchor ethnic self-recognition and distinction; at the meso level, making, wearing, and teaching patterns reproduce collective memory; and at the macro level, patterns can become shared cultural resources that express both ethnic distinctiveness and the diversity-in-unity of Chinese culture. Du and Zuo [2] similarly argue that Oroqen intangible heritage belongs both to Oroqen ethnic identity and to the wider Chinese cultural system, and advocate creative transformation and innovative development rather than unchanged reproduction.

For communication analysis, these levels can be linked to a progressive chain: visual attention, semantic understanding, emotional resonance, cultural belonging, and participatory practice. Lin and Chen's study [3] of intangible-heritage short videos provides relevant, though not Oroqen-specific, evidence. Their findings associate video characteristics with young viewers' visual attention and connect attention with emotional resonance, cultural belonging, and rural cultural identity. Because

that research concerns rural cultural identity more generally and uses a specific sample, it should not be treated as direct proof of identical effects for Oroqen costume patterns. It instead offers a sensitizing model: visually striking content may open the communicative process, but identity-related outcomes depend on narrative, emotion, belonging, and prior cultural contact.

2.3. Research method

The article uses qualitative, theory-guided literature analysis. Eight sources were selected for four functions: UNESCO documents provide the normative basis for living heritage and ethical participation; the official Chinese heritage record establishes the craft context; recent online reviews and an empirical short-video study inform digital communication and community engagement; and the two supplied articles provide Oroqen-specific analyses of safeguarding, visual form, cultural meaning, and identity. The analysis proceeds through visual decoding, identification of communication risks, pathway synthesis, and evaluation design. It is a conceptual study rather than a report of fieldwork, platform scraping, or audience experimentation. The proposed framework therefore requires subsequent testing with Oroqen communities, craft bearers, and audiences.

3. Visual Resources and Their Communicative Requirements

3.1. Motifs and compositional grammar

Qi and Shi [4] identify several recurring motif types, including antler, cloud-scroll, fret or meander, and Nanchuoluo floral patterns. Their analysis describes the geometric condensation of antler forms, the continuous curves of cloud-scroll designs, the closed linear organization of fret patterns, and the simplified symmetry of floral motifs. At the level of garment composition, symmetry, repetition, and radiation generate rhythm across collars, cuffs, hems, borders, and principal decorative areas. These features provide a basis for digital recognition and comparison, but they should not be reduced to a single standardized template. Hand-produced variation, regional difference, chronology, garment type, and individual artisanship are themselves evidence of a living tradition.

A digital classification system should consequently record both shared features and variation. A pattern name alone is insufficient: the same digital record should connect outline, compositional unit, placement, neighboring motifs, scale, technique, and the bearer's account of meaning. Interpretations reported in the literature—such as associations with natural order, protection, blessing, or life continuity—should be entered as sourced interpretations, not as a universal visual dictionary whose meanings apply identically in every community and historical situation [4]. Such caution is essential if digital systems are to support cultural understanding rather than algorithmic overgeneralization.

3.2. Color, material, and tacit skill

The visual identity of Oroqen costume patterns is also chromatic and material. Qi and Shi [4] describe the natural off-white, brown, and yellow tones of hide as a frequent ground, with dark and red accents, while emphasizing the effects of cut-hide appliqué, stitching, embroidery, and layered relief. The official heritage description likewise places ornamentation within a full production process rather than after it as an independent decorative step [1]. A flat vector drawing can preserve contour, but it cannot by itself communicate hide grain, thickness, stitch tension, color variation, seam placement, or the manual decisions involved in making a design feasible on a particular material.

Digital revitalization therefore requires multimodal documentation. High-resolution overall photography should be combined with macro images of stitches and material, color references, garment-level views, process video, and, where appropriate and feasible, three-dimensional or reflectance-based recording. Just as importantly, artisan narration should explain why particular formal choices are made. This shifts the communicative object from "a pattern" to "a pattern coming into being through skilled practice."

3.3. Cultural meaning and the risk of decontextualization

Oroqen patterns can be read as visual carriers of ecological experience, cosmological understanding, blessing, life consciousness, and collective memory [4]. These interpretations create rich narrative possibilities, but they also raise the stakes of decontextualization. When a sacred, commemorative, or socially regulated sign is detached from its setting and circulated as an exotic decorative element, visibility may be achieved at the cost of misrepresentation. Conversely, treating every motif as secret or untouchable can inhibit legitimate public interpretation. The appropriate response is not maximal exposure or blanket restriction, but bearer-informed differentiation between openly shareable knowledge, knowledge requiring contextual explanation, and knowledge subject to restricted access.

4. Structural Risks in Digital Communication

The first risk is symbol fragmentation. Platform-friendly images favor isolated, repeatable, and immediately recognizable forms. This can separate motifs from garment construction, craft sequences, oral accounts, and local terminology. A pattern becomes visually available but culturally unreadable. The second risk is spectacle replacing tacit knowledge. Fast montage and dramatic transformation effects may privilege the finished garment over tanning, cutting, stitching, correction, and learning. Viewers see a visual result without understanding the skill and time that make it meaningful.

The third risk is one-way display. Tan, Yang, and Wang's review [5] of 79 studies argues that digital methods support living heritage most effectively when aligned

with meaningful community participation. It warns that high-fidelity recording without community involvement can produce "digital fossilization," while automated classification without consultation can decontextualize knowledge. For Oroqen patterns, an archive or immersive exhibition should therefore be judged not only by technical precision but also by who selects the material, interprets it, controls access, and can correct the record.

The fourth risk concerns identity narration. One extreme exoticizes Oroqen heritage as a remnant separated from contemporary life; the other dissolves its specificity into a generic symbol of national culture. Both weaken visual identity. The former denies present-day agency and change, while the latter makes diversity difficult to perceive. A more adequate account follows the relational approach in the Oroqen-specific literature: distinct visual traditions can express ethnic memory while simultaneously demonstrating historical interaction and contributing to a diverse yet integrated Chinese cultural community [2, 4].

5. An Integrated Communication Pathway

5.1. Build a community-authorized digital knowledge base

The foundational unit should be a contextual record rather than an isolated image file. Each record can combine a persistent identifier; local and translated names with variant spellings; overall and detail images; garment type and motif placement; compositional features; materials and techniques; maker and provenance information where disclosure is permitted; dated oral interpretation; related photographs, video, and teaching material; and explicit rights and access conditions. Records should distinguish documented observation, bearer testimony, and later scholarly interpretation. This separation allows users to see the basis of each claim and reduces the chance that an interpretive hypothesis becomes an unquestioned fact.

AI may assist with image segmentation, similarity retrieval, transcription, and metadata recommendation, consistent with the analytical possibilities identified by Wei et al. [8]. It should not independently determine motif names, cultural meanings, or authenticity. Bearer review should remain a formal stage in data ingestion and publication. The database should also permit multiple authorized records for comparable motifs so that variation is not treated as error. Version history and correction logs can make the living character of the tradition visible while maintaining research accountability.

5.2. Translate visual meaning through layered narratives

A layered content system can connect audiences with different levels of knowledge. Short videos and visual posts should serve as discovery routes, not as the entire interpretive environment. Medium-length craft narratives can show how a motif is made and why material constrains form. Long-form documentaries, virtual

exhibitions, and open educational resources can preserve oral histories, compare garments, and explain historical change. Every short item should provide a clear route to a fuller source, allowing attention to develop into understanding.

An effective narrative sequence is "seeing the form—following the hands—hearing the memory." A video may begin with a close view of a compositional detail, move to the artisan's cutting or stitching process, and then present the bearer's explanation of use, learning, or recollection. This sequence integrates salience, skill, and meaning rather than relying on visual novelty alone. The attention–emotion–belonging pathway discussed by Lin and Chen [3] supports the general value of this design, while its actual effectiveness for Oroqen content should be evaluated with relevant audiences.

Language is part of semantic translation. Local motif names should be retained with community-verified transcription and pronunciation where possible. Chinese explanations can support domestic educational use, while English versions should translate interpretive relationships rather than merely supply exoticized labels. Terms without stable equivalents should be explained briefly instead of forced into misleading analogies. Captions, transcripts, audio description, and legible visual design can broaden access across linguistic and sensory differences.

5.3. Develop participatory and immersive experiences

Interactive media should make relationships perceptible. A virtual garment viewer could allow users to move between an entire robe, a border, and a stitch-level detail; an augmented display could show how a two-dimensional motif sits on a three-dimensional garment; and an interactive craft sequence could ask learners to arrange production stages before watching an artisan demonstrate them. These tools can support contextual learning, but they cannot reproduce the tactile resistance of hide or the social discipline of apprenticeship. They should therefore lead toward workshops, museum learning, and bearer-led teaching rather than claim to replace them.

Participation must also extend to production and governance. Community members, especially practicing artisans and younger learners, should be involved in choosing stories, reviewing scripts, designing interactive tasks, and determining which materials remain restricted. This operationalizes the movement from consultation to co-design and co-governance emphasized by Tan et al. [5]. Public remixing may be encouraged only within bearer-approved guidelines. Unrestricted filters, automatic "Oroqen-style" generators, and decontextualized sticker packs risk turning participation into unaccountable appropriation.

5.4. Coordinate platforms and audience segments

Different platforms should perform different functions within one communication ecology. A museum or heritage database can act as the stable, fully sourced

reference point; short-video and social platforms can support discovery; community accounts can present contemporary voices and correct misreadings; schools and museums can provide guided learning; and academic repositories can preserve documentation and evaluation results. Repeated content should link back to the same authorized record, preventing contradictory names and meanings from proliferating without traceability.

Audience segmentation should be based on relationships to the heritage, not only age or platform preference. Oroqen youth may need accessible records, artisan narratives, and routes into practice. General domestic audiences may need clear explanations of regional history and cultural interaction. Design students and creative practitioners require licensing information and guidance on respectful co-creation. International audiences require contextual translation that avoids primitivizing imagery and explains both distinctiveness and cultural interconnection. Such segmentation allows one knowledge base to support multiple narratives without producing multiple incompatible versions of the heritage.

5.5. Return digital resources and benefits to living transmission

The pathway is incomplete if digital materials remain external to community life. Bearers and local institutions should be able to retrieve high-quality copies for teaching, exhibitions, family transmission, and community research. Training in photography, metadata, video editing, and rights management can reduce dependence on outside teams. Online learning can be connected to offline workshops, school activities, museum demonstrations, and opportunities for sustained apprenticeship. These links provide practical content for the creative transformation and innovative development advocated by Du and Zuo [2].

Authorized cultural-creative development may generate additional value, but the starting point should be co-design rather than extraction. New products should identify their sources, distinguish contemporary adaptation from historical artifacts, and establish benefit-sharing arrangements before release. Digital resources can help designers understand which elements are open to adaptation and which require further consent. In this way, innovation becomes a continuation of cultural agency rather than a one-way transfer of visual capital.

6. Visual Identity Construction and Evaluation

6.1. A three-level identity mechanism

At the micro level, communication should help Oroqen viewers and other audiences recognize distinctive visual relationships rather than memorize isolated motifs. Garment placement, craft technique, oral terminology, and bearer testimony provide anchors for ethnic self-recognition. At the meso level, stories of learning, making, wearing, and intergenerational teaching transform recognition into collective memory. Digital narratives should therefore feature people and relationships, not

only objects. At the macro level, public interpretation can show how Oroqen visual heritage contributes specific ecological and aesthetic experience to the diversity-in-unity of Chinese culture, following the identity framework developed by Qi and Shi [4] and the safeguarding perspective of Du and Zuo [2].

These levels should be presented as mutually reinforcing rather than mutually exclusive. Ethnic self-identification need not be weakened by broader cultural identification, and a shared national narrative need not erase local specificity. The communicative task is to make both relationships visible. Likewise, identity should not be inferred from views or likes. The relevant sequence is whether audiences move from noticing a form, to understanding its context, to feeling a meaningful connection, and finally to supporting or participating in transmission.

6.2. Evaluation indicators beyond platform traffic

Evaluation should combine platform analytics, document audit, bearer review, audience research, and follow-up evidence from educational or community programs. Table 1 offers a reusable framework. The indicators are proposals for future testing, not measurements claimed by the present study.

Table 1. Proposed evaluation framework for digital communication and visual identity

Dimension	Core question	Illustrative indicators	Possible evidence
Cultural fidelity	Are motif, craft, context, and source relationships preserved?	Bearer approval; metadata completeness; provenance and access compliance; correction history	Review logs; record audits; bearer feedback
Communication effectiveness	Does attention develop into understanding?	Video completion; movement to long-form sources; knowledge gain; substantive questions and comments	Platform analytics; pre/post tests; comment analysis
Visual identity	Does recognition develop into connection and belonging?	Motif-in-context recognition; emotional resonance; perceived connection to ethnic and wider cultural narratives	Surveys; interviews; learner reflections
Living transmission	Does viewing lead to learning, reuse, or continued practice?	Workshop participation; sustained youth learning; community reuse; authorized co-created outputs	Program records; follow-up interviews; teaching archives
Ethical sustainability	Who decides, benefits, and can request correction?	Documented consent; licensing clarity; benefit sharing; response to correction or takedown requests	Agreements; benefit reports; governance logs

Note. Indicators should be adapted through consultation with participating Oroqen communities and institutions.

No single indicator is sufficient. High completion rates may coexist with misunderstanding, while a small specialist archive may have substantial educational and community value. Mixed evidence is therefore necessary. Baseline and follow-up studies should distinguish immediate emotional response from durable understanding and participation. Community-defined indicators should also be included, because external measures of reach or authenticity may not reflect what local bearers consider successful safeguarding.

7. Governance and Ethical Safeguards

UNESCO's ethical principles assign the primary safeguarding role to communities, require free, prior, sustained, and informed consent, and call for respect for living change, cultural diversity, moral and material interests, and community authority

over threats such as decontextualization, commodification, and misrepresentation [7]. Applied to Oroqen digital communication, these principles require governance before content production. Project teams should agree on decision-making authority, attribution, licensing, revenue distribution, access restrictions, withdrawal procedures, and long-term data stewardship. Consent to documentation should not be treated as automatic consent to commercial reuse or AI training.

Editorial governance should include Oroqen bearers and community representatives alongside curators, designers, researchers, and platform specialists. Particular attention should be paid to the visibility and authority of the women artisans who sustain much of the craft knowledge, as well as to younger participants who will carry digital and manual skills into the future. Sensitive materials should use tiered access rather than being exposed by default. Community correction channels should be visible, and disputed interpretations should be documented rather than silently overwritten.

Generative AI requires additional restraint. Synthetic motifs should be clearly labeled as contemporary generated designs, never presented as historical Oroqen artifacts. Training data, prompts, and outputs should respect the rights conditions attached to source images. Human review must address not only visual plausibility but also cultural meaning and inappropriate hybridization. The purpose of technological sophistication is to serve cultural continuity; it is not to manufacture an apparently authentic past. At the same time, respect for living heritage means allowing documented change and contemporary creation rather than imposing a frozen standard of authenticity [7].

8. Conclusion

Oroqen costume patterns should be communicated as relational visual heritage, not as detached ornamental resources. Their digital revitalization depends on reconnecting form with hide and stitch, motif with maker and memory, and public visibility with community interpretation and practice. The pathway proposed here—community-authorized documentation, contextual semantic translation, layered narration, participatory co-creation, and community return—links technical processes to the formation of visual identity. It also provides a route through which ethnic self-recognition, collective memory, and identification with a diverse yet integrated Chinese cultural community can be communicated without collapsing one level into another.

The central evaluative principle is therefore not how many images circulate, but whether circulation strengthens the capacity of people to understand, transmit, and recreate the tradition. Future research should test the framework through collaborative fieldwork with Oroqen communities, comparative analysis of actual platform content, audience studies, and long-term evaluation of educational and co-design projects. Such work would make it possible to refine motif metadata,

verify identity-related mechanisms, and determine which digital formats genuinely contribute to living transmission.

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