Re-thinking Fashion Futures:
Co-Designing Digital Tools with Vietnam's Textile Craft Communities

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ABSTRACT

This developmental paper explores early findings from the Vietnam Design Research Studio (VDRS) for Sustainable and Resilient Fashion Futures at RMIT University Vietnam's School of Communication & Design. Focusing on community innovations, the project documents and sustains indigenous fashion practices and knowledge among Vietnam's ethnic minorities, addressing the pressures of globalization and urbanization.

The VDRS emphasizes participatory methodologies, centring local voices to co-create sustainable fashion practices and foster cultural preservation. Initial community workshops revealed challenges and successes in integrating traditional techniques, storytelling, and symbolism into modern contexts. Supported by partnerships with museums, the project facilitates renewed appreciation for traditional practices.

A key outcome is the development of an open-access digital platform as a repository and collaboration tool for artisans, enabling the global dissemination of digitized textile techniques and contributing to the integration of indigenous practices into fashion curricula. The project aims to empower communities by providing economic opportunities, capacity building, and skill enhancement while advancing regenerative, land/place-based fashion frameworks.

Through this research, the VDRS envisions a localised, inclusive fashion industry that renews systems and challenges dominant ideals, setting a precedent for global sustainability and cultural diversity.

Keywords: Traditional Knowledge; Sustainable Fashion; Participatory Design; Indigenous Practices; Cultural Heritage; Digital Preservation; Community Innovation

INTRODUCTION

The Vietnam Design Research Studio for Sustainable and Resilient Fashion Futures (VDRS), responds to the urgent need to preserve and revitalize indigenous fashion

practices threatened by globalization and urbanization. Textile crafts, embedded in the cultural heritage of Vietnam's ethnic communities, are increasingly at risk as mass production and economic migration draw younger generations away (Diep Chi, 2023). Nguyen (2023) highlights the transformations in material use and the declining presence of traditional practices, underscoring the erosion of cultural values and knowledge systems.

The VDRS engages in participatory research to rethink fashions futures by centring the voices of ethnic communities. It fosters agency by promoting economic opportunities, skill development, and capacity building. Through workshops, exhibitions, and symposiums, the project facilitates collaborative learning and knowledge exchange between local and global stakeholders, aligning with the Forming Futures theme by reimagining fashion as a tool for sustainable inclusive growth. A key innovation is the development of a co-designed digital platform that serves as a repository for cultural knowledge and collaborative tool for artisans. By bridging local traditions with global audiences, the platform challenges dominant fashion narratives and emphasizes the role of traditional knowledge in shaping regenerative fashion systems. Through its partnerships with museums, the VDRS seeks to create a scalable and culturally respectful model for preserving and celebrating these practices.

LITERATURE REVIEW

Traditional textiles embody the unique identities and practices of ethnic communities, serving as cultural markers while preserving rich narratives of history, ecological wisdom, and social practices. Far from being merely aesthetic artefacts, these textiles are critical repositories of Indigenous Local Knowledge, defined as the "cumulative body of knowledge, practice, and belief, evolving through adaptive processes and passed down across generations by cultural transmission, concerning the relationship between living beings (including humans) and their environment" (Berkes et al., 2000, cited in Burgos-Ayala et al., 2020). This interconnectedness reflects deep, symbiotic relationships between traditional communities and their environments, with textiles functioning as expressions of this bond.

Globally, preserving indigenous knowledge and integrating it into sustainable fashion practices has been widely acknowledged as essential (Nwabueze, 2023). However, this integration poses challenges alongside opportunities. While growing demand for artisan products has revitalized indigenous communities' incomes, it often requires altering traditional techniques to meet market expectations (Colloredo-Mansfeld, 2002; Karolia & Ladia, 2012, cited in Ramkumar & Dias, 2023). Such commodification risks cultural disconnection and erosion of traditional knowledge. Additionally, collaborations between ethnic artisans and contemporary designers can unintentionally perpetuate hegemonic representations or lead to cultural appropriation. Uncredited inclusion of indigenous designs in fashion collections exemplifies this issue, sparking calls for participatory design practices (Villadiego, 2019).

In Vietnam, textiles are woven into the cultural fabric of the country's 53 ethnic minority groups (Ha, 2022; Nguyen, 2023). Motifs convey historical narratives, spiritual beliefs,

and social values, with techniques passed down through generations that reflect deep connections to the natural. Despite their richness, significant gaps remain in research on Vietnam's ethnic textiles. Existing studies are fragmented, often focusing on specific groups or regions, and fail to provide a comprehensive understanding of these practices (Chu & Nguyễn, 2023; Howard, 2016; Le, 2023; Nguyen & Nguyen, 2023; Nong & Vu, 2022; Son, 2019; To, 2003; Tran, 2005).

Much of the available literature relies heavily on textual descriptions, offering limited visual representation of intricate techniques. This omission hinders understanding of their cultural and technical distinctions. Although local museums preserve artefacts, they often remain physically inaccessible to broader audiences This limitation underscores the urgent need for innovative approaches, like digital visualization, to document, and disseminate this knowledge. Digital tools, when applied thoughtfully and collaboratively, hold the potential to bridge these gaps, making the artistry and cultural significance of traditional textiles accessible to global audiences.

UNLEARNING FASHION AND RETHINKING PERSPECTIVES: RATIONALE AND METHODOLOGIES

The VDRS aims to dismantle harmful fashion paradigms, prompting a re-evaluation towards localized, regenerative approaches, emphasizing cultural preservation and sustainability through co-design and participatory action research. These methods prioritize community input, shaping research outcomes and promoting local knowledge systems (Matsika, 2012, cited in Sebele & Toit, 2024). They aim to co-create place-based fashion futures that honour unique identities and traditional knowledge, fostering inclusive innovation. By using participatory frameworks, the project challenges hierarchical research practices, empowering communities to define their roles in the evolving fashion industry.

Frameworks for Preserving Indigenous Knowledge

The project leverages the increasing recognition in global discourse of the inherent sustainability of indigenous knowledge systems for environmental and community well-being. Albuquerque et al. (2021) propose a framework merging traditional ecological knowledge (TEK) with academic ecological knowledge (AEK), showcasing the value of blending diverse systems and offering a holistic view of sustainability challenges (Figure 1).
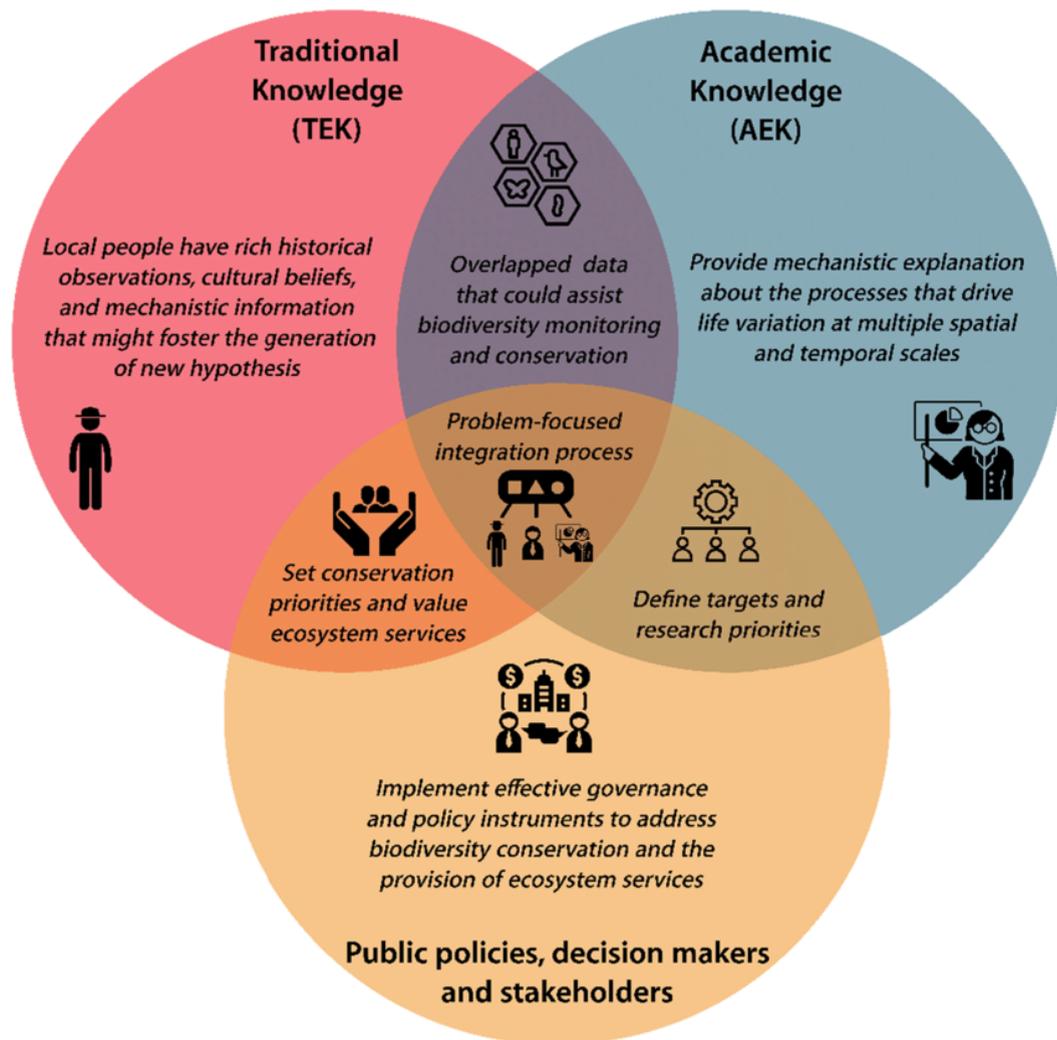
Figure 1: Albuquerque et al. (2021), *Integrating traditional ecological knowledge into academic research at local and global scales*, *Regional Environmental Change*, 21, pp. 1-11

Pierotti and Wildcat (2000) advocate for a comprehensive approach to traditional knowledge that respects nonhuman entities as individuals, acknowledges interconnectedness between humans and nonhumans, prioritizes local environments, and integrates humans into ecological systems. These principles resonate with indigenous communities' harmonious relationships with seasonal cycles, spiritual beliefs, and communal goals. By upholding these frameworks, the VDRS project aims to counter the historical marginalization of indigenous knowledge due to globalization and industrialization.

PRELIMINARY STAGE: LEARNING WITH COMMUNITIES
The VDRS project is in its early stages, focusing on foundational activities such as literature review, collaboration with museum partners and NGOs, and identifying craft villages for engagement. A pilot field trip is planned for December 2024 to initiate community interaction. Before engaging with stakeholders, the research team prioritized ethical approval and began exploring methodologies for digitally documenting textile artefacts. Integrating digital tools like fabric scanning and

photogrammetry offers both opportunities and challenges for preserving and communicating the cultural narratives embedded in Vietnam's traditional textiles. Initial studio explorations revealed potential risks, such as the homogenization of unique, non-replicable qualities inherent in handcrafted textiles. These concerns highlight the need for critical evaluation of these technologies to ensure that their application remains participatory, accessible, and adaptable. By doing so, the technologies can be re-contextualized by indigenous communities themselves, rather than perpetuating Western-centric frameworks.

Preserving Cultural Narratives with Digital Tools
The focus of the project lies in three main areas:

1. Digital Replicas (Digital Twins): Recording visible and hidden cultural nuances of crafts to document their distinct features while upholding artisans' control and ownership.
2. Inclusive Documented Practices: Integrating digital tools with conventional methods like interviews, photography, and mapping to enhance documentation, ensuring accessibility for artisans and fostering collaborative processes.
3. Empowering Artisans: Enabling local communities to actively engage in heritage preservation and dissemination by providing access to digital tools for co-creation.

While high-fidelity scans can replicate intricate textures, they may miss capturing the cultural essence of artifacts. For instance, using Adobe Substance 3D in early tests overlooked subtle variations like thread colour shifts or intentional imperfections crucial to defining each craft's uniqueness. This risk of homogenization threatens to erase artisans' narratives, hidden meanings, and personal touches embedded in their creations.
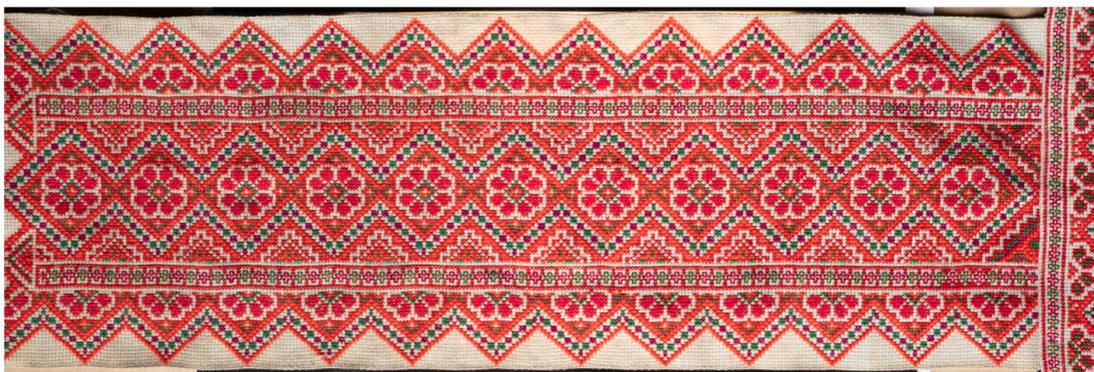

Figure 2: Flower Hmong apron, cross-stitched. Photographical reproduction.
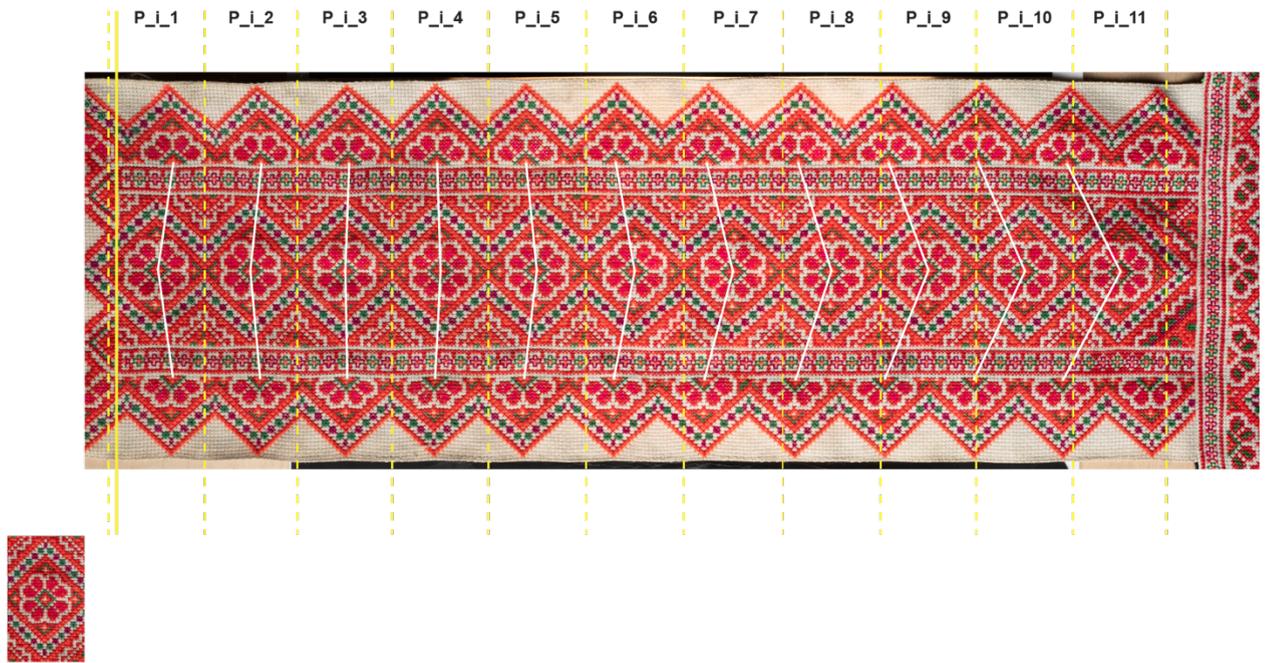*Source:* Author's own work (VDRS, 2024; Waldhart, 2024).

Figure 3: Flower Hmong apron, cross-stitched. Shifting pattern observation. *Source: Author's own work (VDRS, 2024; Waldhart, 2024).*

Figure 4: Flower Hmong apron, cross-stitched. Digital render and analysis. *Source: Author's own work (VDRS, 2024; Waldhart, 2024).*

To address these challenges, the project emphasizes the need for adaptable digital tools that go beyond replication to reflect the cultural richness and individuality of hand-made crafts. Drawing on Weick's (2007) concept of "richness," which underscores detailed and context-rich observation, the VDRS project seeks to ensure that digital tools respect and reflect the complexity of traditional textiles. This approach positions digital innovation not as a replacement but as a complement to traditional documentation methods, ensuring these cultural treasures are preserved and appreciated on a global scale.

Navigating Access and Gatekeeping
While technology holds immense potential for documenting cultural crafts, it also introduces barriers. Access to digital tools often favours individuals and institutions with technical expertise and resources, raising questions about representation and authorship in these new mediums. Who gets to tell these stories, and how can digital tools be democratized to empower remote and under-resourced communities? To ensure inclusivity, digitization must go beyond technical replication, aligning with cultural practices and narratives of indigenous communities to create meaningful and accessible interactions.

The VDRS project addresses these barriers by prioritizing the adaptability of emerging digital tools to align with the cultural and technological contexts of the communities it serves. Ethical integration of technology emphasizes artisans' active participation, positioning them as co-creators of tools and processes rather than passive users. By fostering conditions for participatory workshops and collaborative design sessions, the project ensures that technology becomes a medium for community-led storytelling.

Engaging with Communities and Ethical Considerations
The preparatory phase of the VDRS project has raised critical questions about ethical engagement and the role of researchers as learners in a reciprocal exchange with traditional knowledge holders. Central to this process are respectful participant identification, informed consent, and recognition of the community's expertise. These considerations highlight the necessity of reshaping the narrative around Culturally and Linguistically Diverse participants to emphasize their agency and depth of knowledge. The research team, composed of Western academics and a Vietnamese assistant, from the majority Kinh ethnic group, recognizes its outsider status. Limited by brief visits to craft villages, the team faces the challenge of ensuring genuinely participatory methodologies.

Can the gap between 'us,' the Western-educated researchers, and 'them,' the traditional knowledge holders, be bridged? This division often mirrors broader power and representation issues in research, emphasizing the importance of humility, reflection, and commitment to co-creation.

As interest in traditional knowledge systems grows, particularly in sustainability context, researchers increasingly document and preserve indigenous practices. Yet questions persist: Who determines what is worth preserving? Whose stories take precedence? The VDRS project positions itself as a connector, linking local knowledge with global contexts and supporting artisans in understanding the broader value or their skills.

This effort requires confronting the inherent tension between Western growth-oriented mindset and the lived realities of ethnic communities in Vietnam. For these communities, textile crafts are integral to everyday life, neither commodified nor framed as art, but as reflections of a way of life. Traditions are not preserved, they are lived. This disconnect prompts the VDRS team to question the implications of exposing local artefacts to global audiences, considering globalization is a key driver

of unsustainable practices.

By acknowledging these complexities, the VDRS project seeks to act responsibly, ensuring that its efforts to document and share traditional crafts honour the values, priorities, and agency of the communities involved. This reflective approach underscores the project's commitment to inclusive, and participatory research practices.

Learning Through Collaboration: Ethical and Methodological Considerations
The VDRS project is grounded in the principle of learning with, rather than teaching, the communities it engages. By documenting indigenous fashion practices, the project aims to tell authentic stories and critically evaluate how identities and communities are represented through fashion's cultural narratives.

During the ethics approval process, several key considerations emerged particularly around the composition of the research cohort. Ensuring participants' ability to give informed consent, providing the right to withdrawal, and identifying participants during fieldwork without compromising their autonomy were central to the project's design. These considerations underscore the complexity of working with diverse, non-homogenous groups and the need to tailor methodologies to each specific community. How can we decide who should participate in the research and ensure that such decisions are inclusive and equitable? How do we navigate our role as external researchers without reinforcing hierarchical dynamics?

CONCLUSION AND OUTLOOK
The VDRS project demonstrates the transformative potential of community-centred, participatory approaches in reimagining sustainable and inclusive fashion ecosystems. By prioritizing tailored methodologies that respect the unique identities, traditions, and knowledge systems of Vietnam's ethnic communities, the project underscores the importance of co-creation and shared decision-making in addressing the challenges posed by globalization and cultural homogenization.

Key observations highlight that respectful engagement, ethical considerations, and empowerment of traditional knowledge holders are critical to meaningful collaboration. These principles enable artisans to retain ownership of their craft while fostering opportunities for skill development, economic growth, and cultural preservation. Tailoring methodologies to the needs of specific communities ensures that the research process aligns with their values and priorities, offering a replicable model for future participatory projects.

Looking forward, the VDRS project will continue to focus on community-driven initiatives and the integration of digital tools to democratize the preservation and sharing of indigenous crafts. The development of adaptable, context-sensitive strategies will be essential to ensuring the long-term sustainability of these practices. By echoing Agassiz's principles of immersive observation and Weick's emphasis on cultural richness, the project aspires to create regenerative frameworks that honour and celebrate the voices of local communities.

Digital tools, when designed in collaboration with artisans, have the potential to transcend replication and become mediums for collective cultural celebration. By fostering a participatory ecosystem, these tools can facilitate dialogue, exploration, and meaningful connections across the fashion landscape, challenging dominant narratives and advancing a more equitable and diverse industry. The VDRS project not only contributes to reshaping the future of fashion but also sets a precedent for ethical and inclusive research methodologies that prioritize community agency and cultural continuity.

Through its continued commitment to collaboration, innovation, and respect for traditional knowledge, the VDRS project envisions a future where fashion serves as a bridge between cultural heritage and sustainable progress, forming futures that are both inclusive and resilient.

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