

The Hands Remember What the Market Forgets: Neuro-Aesthetics in Indigenous Craft Ecology

–Subhashree Sanyal*, Arup Kumar Baksi**

ABSTRACT

This study examined the intersection of indigenous craftwork, neuro-aesthetics and psychological resilience among the women artisans at Sonajhuri Haat, Santiniketan, West Bengal. The study employed decolonial feminist framework to address the marginalisation of Indigenous knowledge in neuro-aesthetic discourse. Through participatory methods, including body-mapping, motif analysis and story-work valuation, we developed a thematic structure of creative resilience index (CRI) that integrates somatic, psychological and possible economic agency metrics. It revealed three key findings: (a) artisans' descriptions of craft's therapeutic benefits (e.g., 'clay slows my heartbeat') align with neuroscientific evidence on flow states; (b) motifs like 'cooling the eyes' wave patterns correlate with alpha wave synchronisation, demonstrating indigenous intuitive mastery of neuro-aesthetic principles; and (c) artisans value crafts on higher denomination for inter-generational 'soul labour' (trauma recovery) than the market prices reflect. These findings have critical implications for social work, advocating for policy shifts towards culturally grounded mental health interventions, trauma-informed craft therapies and anti-exploitative intellectual property models. The study highlighted the urgent need to centre indigenous epistemologies in neuro-aesthetic research and

* Assistant Professor, Department of Social Work, Visva-Bharati, Santiniketan, West Bengal, India. Email: subhashreesanyal@gmail.com; ORCID: <https://orcid.org/0000-0002-1570-5992>

** Professor, Department of Management and Business Administration, Aliah University, Kolkata, West Bengal, India. Email: baksi.arup@gmail.com; ORCID: <https://orcid.org/0000-0002-9206-3994>

How to Cite: Sanyal, S., & Baksi, A. K. (2025). The hands remember what the market forgets: Neuro-aesthetics in indigenous craft ecology. *Social Work Chronicle*, 14(1), 103-139.

economic policy, offering the CRI as a tool to decolonise craft valuation and amplify artisans' agency.

Keywords: *Indigenous Neuro-Aesthetics, Creative Resilience, Decolonial Feminism, Craft Therapy, Cultural Preservation, Participatory Research*

INTRODUCTION

Neuro-aesthetics converges on the neural foundation of aesthetic experiences, including art appreciation, value perception and creativity. It aligns and merges neuroscience, behavioural psychology and art theory to decipher the processing and response patterns of human brain to artistic stimuli. Semir Zeki (1999), a pioneer in the field, defined neuro-aesthetics as the study of the brain's response to art, emphasising how visual imageries and emotional processing regions of human brain (e.g., the orbitofrontal cortex and default node-network) contribute to aesthetic judgement. Research also explored how cultural and evolutionary factors could shape aesthetic preferences (Chatterjee & Vartanian, 2014) that could alter transgenerationally.

This phenomenon presents a challenge to practitioners of indigenous craft to maintain the purity (originality) of the craft form while incorporating it into livelihood perspectives.. This surfaced issue of creative resilience. Creative resilience refers to the ability to maintain or recover creative outputs despite challenges, such as economic pressure, market demands, cultural shocks or uncertainty. It involves cognitive flexibility, emotional regulation and adaptive problem-solving. Csikszentmihalyi (1996) linked resilience to the "flow states," where artisans persist by negotiating challenges by engaging deeply with their practice of craft. Neuroscientific studies suggested that creative resilience involved prefrontal cortex activation and dopamine-driven reward systems, enabling individuals to reconfigure obstacles as opportunities (Dietrich, 2004). This concept has been critical in art therapy and craft innovation. The study of neuro-aesthetics is particularly critical in the context of craft's evolutionary commercial dynamism which challenges morphostatic cultural practice and entraps artisans into a dualism of originality versus market-driven demands. Several places, in India, where artisans are using indigenous craft as source of livelihood, are fighting these challenges. *Sonajhuri Haat* of Santiniketan, West Bengal is one such place.

The vibrant marketplace of *Sonajhuri Haat* in Santiniketan, India, presents a profound case study in how Indigenous women's craftwork

mediates between cultural preservation, economic survival and the often-overlooked aesthetic and therapeutic dimensions of traditional artistry. While Santal and Kora women artisans are celebrated as cultural custodians, the complex interplay between their creative labour, psychological resilience and the emotive power of their crafts remains under-examined in conventional research frameworks. This study pioneers an interdisciplinary approach, blending feminist ethnography with neuro-aesthetic theory to reveal how traditional craft patterns function as both cultural signifiers and psychological anchors for both creators and consumers.

At the heart of this inquiry lies a fundamental tension: the same handcrafted motifs that evoke neural responses of pleasure and connection in buyers (Chatterjee, 2014) often represent significant cognitive and emotional labour for their creators. Through in-depth interviews with 25 Santal women artisans, participatory observation across three seasonal market cycles and motif analysis of 347 craft objects, this research documents how traditional craft production engages what neuro-aesthetic scholars term “embodied cognition” (Freedberg & Gallese, 2007)—the physiological resonance between maker, object and viewer. The repetitive, meditative motions of *Kantha* embroidery or terracotta moulding, for instance, emerge in narratives as therapeutic practices that simultaneously preserve cultural memory and regulate stress, even as they remain economically devalued.

The study addresses three critical gaps. First, while neuro-aesthetics has extensively studied Western art perception (Pelowski et al., 2017), Indigenous craft traditions remain marginalised in this discourse, despite their sophisticated geometric vocabularies that neurologically trigger pattern recognition and emotional response (Dissanayake, 2015). Second, the psychological benefits of craftwork for artisans—what we term “creative resilience”—are seldom analysed through their own phenomenological accounts. Third, development policies fail to recognise how the aesthetic potency of handmade objects (which consumers describe as “soulful” or “alive”) stems directly from the cognitive labour that current economic models render invisible.

Fieldwork reveals compelling contradictions. Women describe losing themselves in the “flow” of creation (Csikszentmihalyi, 1990)—a state neuroscientists associate with dopamine release—while simultaneously battling the exhaustion of commercial pressures. The very motifs that buyers find calming (Santal wave patterns mirroring theta brain waves)

represent years of unpaid inter-generational knowledge transfer. Through extended case studies, we document how artisans consciously manipulate aesthetic elements—adjusting colour saturation in *alpana* designs or varying textile textures—to evoke specific emotional responses in buyers, demonstrating an intuitive grasp of neuro-aesthetic principles long before the term existed.

This research asks:

- How do artisans describe the psychological effects of craft production in their own terms?
- What aesthetic strategies do they employ to communicate cultural meaning neurologically?
- How might recognising craft’s neuro-aesthetic dimensions reshape equitable development policies?

By centering Indigenous women’s narratives while engaging carefully with neuro-aesthetic theory, the study offers a humanistic alternative to laboratory-based approaches. When a master weaver explains how certain patterns “sing to the hands” or a potter describes clay work as “medicine for scattered thoughts,” they articulate embodied knowledge that Western science is only beginning to quantify. These insights demand policy frameworks that value craft not just as commodity, but as vital cognitive, cultural and psychological sustenance in an increasingly homogenised world.

LITERATURE REVIEW AND THEORETICAL FOUNDATION

The ontological imperative for this study emerges from a fundamental contradiction in contemporary craft research. While neuro-aesthetic science increasingly recognises the profound neurological impacts of pattern perception (Chatterjee and Vartanian, 2016), indigenous women’s knowledge systems about these very phenomena remain systematically excluded from academic discourse (Smith, 2021). This epistemic violence constitutes what Battiste (2016) termed as ‘*cognitive imperialism*’, depicting the colonisation of aesthetic experience by Western scientific paradigms that dismiss indigenous processes of knowing as ‘*mythopoetic*’ rather than evidential. The marginalisation is particularly acute in craft research, where neuroscientific studies of aesthetic preference overwhelmingly focus on Western museum objects (Pelowski et al., 2017), while indigenous material culture has been relegated to anthropological “craft” categories

(Clifford, 1988).

Feminist political economy (Fraser, 2016) reveals how neoliberal markets deliberately obscure craft's therapeutic value to justify exploitative pricing—a process mirrored in academia's negligence of Indigenous neuro-aesthetic knowledge. As Fraser (2016) demonstrated, late capitalism depended on the '*strategic invisibilization of care labour*', including the psycho-physiological labour of craftwork. When master weavers described certain motifs as '*cooling the eyes*', they articulated a phenomenon which an EEG study identified as alpha-wave synchronisation in the occipital lobe of human brain (Hohaia et al., 2022). Yet their expertise remained absent from the literature, reflecting what Mignolo (2021) termed as the '*coloniality of perception*'. Mignolo (2021) explained the phenomena as a hierarchical system that preferred laboratory findings over embodied knowledge. This epistemic asymmetry persisted despite fMRI results revealing indigenous fractal patterns inducing mirror responses of neurons rather than Euclidean designs (Press et al., 2012).

The disciplinary divide constituted what Kirmayer et al. (2015) termed as the '*neural segregation*'. While neuro-aesthetics documented universal symmetry in responses (Chatterjee, 2014), it ignored ethnographic evidence that indigenous artisans deliberately manipulated these principles for cultural purposes. For example, Kora women's '*river spiral*' motifs, whose neuroimaging was found to activate the brain's default node network (Vessel et al., 2019), were orally transmitted as mnemonic devices for ancestral migration routes (Vessel et al., 2019). This disconnect exemplified Battiste's (2016) '*abyssal thinking*', where Western science dismissed indigenous aesthetic epistemologies as '*non-knowledge*'.

As such, three theoretical crises demand urgent attention:

First, the false dichotomy between “scientific” and “cultural” knowledge about craft's psychological impacts. While Western research quantifies how Kantha stitching induces flow states (Ottiger et al., 2021; Gold & Ciorciari, 2020), Santal women have cultivated this understanding through generations of embodied practice (Chakrabarty, 2021). The refusal to recognise Indigenous epistemologies as valid neuroscience constitutes what Kirmayer et al. (2015) identify as “disciplinary apartheid.” Second, the market's systematic devaluation of craft's neurological benefits. fMRI studies prove handmade objects trigger stronger mirror neuron responses than mass-produced goods (Press et al., 2012), yet development policies continue measuring craftwork through productivity metrics alone (World

Bank, 2023). This reductionism reflects what Fraser (2016) terms the “care paradox” - the capitalist need to simultaneously exploit and invisibilise sustaining labour. Third, the appropriation of Indigenous aesthetic principles without compensation. While designers profit from fractal patterns’ proven stress-reduction effects (Taylor et al., 2006), the Santal artisans who developed these neuro-aesthetic systems receive neither credit nor royalties (UNESCO, 2021). This constitutes what Murray (1996) termed as ‘aesthetic dispossession’.

Critical Gaps in Current Scholarship

Five empirical gaps emerged from systematic analysis of 217 peer-reviewed studies:

- First, only 14% of neuro-aesthetic investigations (Pelowski et al., 2022) include non-Western participants, creating what Phillips (2020) calls a “neural representation gap.” This exclusion matters because EEG studies confirm cultural background influences aesthetic preference at the 150-400ms neural processing window (Wang et al., 2021).
- Second, while occupational therapy research demonstrates textile work lowers systolic blood pressure by 8-12mmHg (Reynolds, 2019), these findings are never applied to Indigenous artisans. Instead, anthropological studies romanticise craft as “cultural heritage” (UNESCO, 2021) while ignoring its measurable psychophysiological benefits.
- Third, consumer neuroscience focuses overwhelmingly on museum audiences (Brieber et al., 2022), neglecting how handmade objects trigger mirror neuron responses absent in mass-produced goods (Sasaki et al., 2021). This oversight sustains market systems that undervalue craft’s neurological impact.
- Fourth, participatory research with Indigenous artisans remains siloed in ethnography (Smith, 2021), rarely engaging with cognitive science. When Kora women describe certain motifs as “cooling the eyes,” they reference visual processing in the lingual gyrus (Chatterjee, 2022) - connections that remain unexplored.
- Fifth, development economics continues measuring craftwork through productivity metrics (World Bank, 2023), disregarding studies showing 30 minutes of pottery reduces interleukin-6 levels by 15% (Fancourt et al., 2021). This reductionism contradicts SDG 3’s mental health commitments.

Methodological limitations also, do exist in the current approaches in studying neuro-aesthetics and psychological value-synthesis of craft items. There has been ‘instrumentation bias’ as 92% of neuro-aesthetic studies use fMRI (Peer et al., 2023), despite its inability to capture the kinaesthetic dimensions of craftwork (Ingold, 2023). The studies embodied ‘cultural reductionism’ as financial analysis (Littrell, 2022) has reduced crafts to commodities and ignored its role in transgenerational trauma recovery (Kirmayer et al., 2015).

The study focuses on four specific objectives based on the research gaps identified:

- To document women’s phenomenological experiences of traditional craftwork.
- To examine the neuro-aesthetic features associated with indigenous craft practices and its role in fostering resilient indigenous craft ecosystem.
- To develop thematic items for creative resilience index (CRI) which could be quantitatively validated in future studies.
- To identify the possible scope of articulated social work interventions.

RESEARCH DESIGN AND METHODOLOGY

This study adopted a qualitative-dominant mixed method approach (using the Qual thread as the theoretical drive as per Morse, 2009), integrating feminist ethnography with craft object analysis to explore the intersection of emotional labour, neuro-aesthetics and creative resilience in the trans-generational indigenous craftwork practiced by the women artisans of Sonajhuri Haat, Santiniketan, West Bengal. The research design was grounded in decolonial methodologies that prioritise indigenous knowledge systems while engaging critically with neuro-aesthetic aspects. The study adopted interconnected phases, each addressing specific research objectives while maintaining methodological coherence. The core qualitative approach was executed through phenomenological documentation. This phase used in-depth interviews and participant observation to capture the lived-in experiences of the women artisans while practicing and engaging with indigenous crafts. We drew on Smith’s (2021) decolonised framework to design the interview schedule and administered the same in local language to prevent linguistic epistemicide. The critical incident technique (Flanagan, 1954) was adapted to document

the real-time creative processes rather than relying solely on retrospective accounts. This approach revealed how emotional labour manifested during the actual craft production and the neuro-aesthetic features were ingrained in the craft's morphology. It addressed the temporal limitations identified in existing studies too. We recorded approximately 43 hours of audio recordings and were supplemented with life history calendars based on memory-walk to map inter-generational knowledge transmission patterns and the cognitive spill-overs. The phenomenological documentation was supported with motif analysis, a quasi-quantitative approach which used directed qualitative content analysis (QCA) (Krippendorf, 2019). The use of motif analysis was justified on three counts:

- It provided the epistemic bridge to counter Western narratives of 'primitive' art by quantifying indigenous aesthetic principles (e.g., fractal complexity).
- It measured morphologically critical features of the crafts (e.g., symmetry, colours, design patterns, motifs, etc.) and aligned the same with the artisan's neuro-aesthetic sense (via interview data).
- It documented the aspects of creative resilience against the risk of extinction of indigenous motif variants due to commercial homogenisation.

Hence, motif analysis provided the material counterpart to phenomenological data by examining craft objects through interdisciplinary lenses. Fractal dimension analysis (Taylor, 2023) quantified the complexity of traditional motif patterns, while colour usage (Ghasemi et al., 2023) documented the hue and saturation choices that the women artisans described as emotionally significant. Motif analysis was further used to address the issue of cultural reductionism (Mills & Keddie, 2010) (prevailing in current research dealing with anthropological and cultural aspects of indigenous crafts) by bridging the gap between indigenous aesthetic systems and the perceived neuro-aesthetic aspects of craft design.

The study used stratified purposive sampling (Palinkas et al., 2015) to ensure representation across key demographic and professional variables. The universe was comprised of approximately 417 women artisans participating in Sonajhuri Haat, with the target population narrowed down to 196 practitioners with at least five years of continuous indigenous craft production. The final sample of 25 women artisan participants was determined through data saturation testing (Hennink & Kaiser, 2022), with critical filters, such as age distribution (28-50 years), specialisations

in indigenous craft (e.g., textiles, pottery and woodcarving), and market engagement levels (local, regional, international). This sampling approach balanced out depth of inquiry with cultural appropriateness and adhered to the indigenous research protocols that emphasised relationship-building over large-N studies (Chilisa, 2019). The binary-nature of the study also allowed us to sample the buyers who interact with indigenous craft items during commercial transactions, and hence, were likely to use neuro-aesthetic filters and/or cognitive attachment while franchising their choice of crafts based on motifs. We focused on three buyer-strata, such as the in-bound visitors (tourists) to Sonajhuri Haat, the collectors of craft items (both outsider and local) and the local buyers. However, we could apprehend an issue of homogenising neuro-aesthetic depth of buyers. Hence, we went for neuro-aesthetic proxy measures. We included questions on ‘memory retention’ to assess buyers’ recall of motifs after exposure to understand subconscious aesthetic encoding. We also focused on segregating buyers on the ground of their intention to visit culturally sensitive places (e.g. Sonajhuri Haat) into ‘buyers aligned to fleeting aesthetic appeal’ and ‘buyers having deep cultural/neuro-aesthetic attachment’. The segregation was done based on responses given by the buyers to some specially designed questions, such as ‘*Reflecting on the crafts you saw in the Sonajhuri Haat, which motifs or artistic elements can you still visualize clearly? Do any evoke particular emotions or associations now?*’; ‘*Which of these designs did you encounter earlier? For the ones you recognize, what feelings or thoughts do they trigger?*’; ‘*Imagine this craft was no longer available. How would that make you feel?*’ (to distinguish between fleeting appeal and deep attachment). We interviewed 137 buyers over the three seasonal cycles of our study. The data got saturated with 51 buyers (27 tourists, 8 collectors and 16 local buyers).

The selection of motifs to conduct the motif analysis was done with the following criteria and justification:

- *Representativeness*: Craft objects were selected to populate the full range of craft specialisations in the sample frame (Kantha embroidery, Shital Pati weaving, terracotta pottery, woodcarving, etc.).
- *Temporal Span*: Included both contemporary and archived craft objects (from the past 20 years in the form of images, sketches and descriptions by the women artisans based on memory) to trace the motif evolution.

- *Cultural Significance*: Craft objects with documented ritual/symbolic meaning (via artisan interviews or advocacy from the community elders) were included in the sample frame.
- *Market Diversity*: sampled from the Sonajhuri Haat to assess aesthetic adaptation.

For the normative framework we prioritised craft objects with ≥ 3 recurring motifs (validated by the women artisans) for pattern analysis and we discarded Western Museum Classification of curated craft objects and focused on indigenous terminologies for signifying craft objects based on local festivals, rituals, practices, beliefs and traditions. Based on the criteria we could identify a basket of 231 motifs, used for *Kantah Stitching, Terracotta items and Woodcurvings*.

The data collection instruments were rigorously validated through multiple mechanisms. The interview protocol underwent member checking (Birt et al., 2016) with six members to ensure cultural relevance and clarity. In addition, peer debriefing (Lincoln & Guba, 1985) was conducted with seven experts to refine question wordings for conceptual biases. We checked the interview schedules for internal consistency and conducted the inter-rater reliability test (using Recal2). The Cohen's kappa (0.83) was found to be significant enough to proceed with the instrument based on level of agreement (Krippendorf, 2019) Participant observation followed systematic documentation of the setting, participants, interactions, cultural context, emotional dynamics and duration across three seasonal market cycles (summer, monsoon and winter). Data was collected between April, 2024 to June, 2024 (summer cycle), July, 2024 to September, 2024 (monsoon cycle) and October, 2024 to December, 2024 (winter cycle).

This methodology consciously avoided laboratory-based neuroscience instruments. It targeted to develop culturally-grounded techniques that would synch with indigenous epistemologies and provide significant calibration items for redesigning neuroscience instruments. The research design transcended the disciplinary marginalisation (Kirmayer, 2020) by focusing on women artisan's narratives while systematically analysing material culture, thereby, linking the long separated anthropological and neuroscientific approaches to craft research. The use of theoretical drive (qualitative) in MMR provided depth with measured material analysis and offered an alternative to the instrumentation bias, such as studies conducted with fMRI, EEG, galvanisation tools, etc.

As per MMR protocol, data integration occurred at multiple stages of the study:

- *At the Design Phase:* Sampling and instruments aligned with decolonial frameworks (Smith, 2021; Chilisa, 2019).
- *At the Analytical Phase:* Pairing of women artisans’ and buyers’ narratives with fractal dimension (Taylor, 2006) and motif analysis (Ghasemi et al., 2023) with neuro-aesthetic features.
- *At the Interpretation Phase:* Qualitative insights contextualised quantitative motif patterns to address cultural reductionism (Mills & Keddie, 2010).

Thematic coherence was maintained via iterative process (Birt et al., 2016) and peer debriefing (Lincoln & Guba, 1985).

DATA ANALYSIS AND FINDINGS

The study deployed two methods, such as phenomenological documentation and motif analysis, based on the qual-dominant (using the Qual thread as the theoretical drive as per Morse, 2009) mixed method research. The phenomenological documentation was expedited with in-depth interviews of the artisans practicing indigenous crafts and exhibiting the same at the Sonajhuri Haat, Santiniketan, whereas, the motif analysis used a corpus of motifs (visuals, imageries) screened out from the traditional practices. The analytical process, hence, had two dimensions: (a) QCA to comprehend the neuro-aesthetic aspects of the motifs used in the indigenous crafts (Objectives 2 & 3) and (b) conventional reflexive thematic analysis (Braun & Clarke, 2021) to examine the issues related to the phenomenological experiences in interacting with indigenous crafts (Objective 1).

Following the sampling technique, the study had 347 motifs as represented in Table 1. A section of the used motifs (for the study) was shown in Fig. 1.

**Table 1: Corpus of Motifs Used in Indigenous Crafts
(For the Study Purpose)**

<i>Craft Type</i>	<i>No. of Objects</i>	<i>Motif Profile (Top 3)</i>	<i>Participant Link</i>
Kantha Embroidery	142	Tree of Life, River Spirals, Moon Phases	12 textile artisans
Terracotta Pottery	98	Sun Wheels, Ancestor Faces, Corn Rows	8 pottery artisans
Woodcarving	107	Dancing Figures, Animal Guardians, Seed Patterns	5 woodcarvers



Fig. 1: A Section of the Motifs Used for the Study

The motif analysis was computed, for both the artisans and the buyers, based on six key parameters, such as:

- *For the Artisans*
 - Somatic response
 - Therapeutic benefits
 - Cultural fidelity (market adaptation)
 - Time distortion
 - Spontaneous concentration
 - Autotelic experience.

Based on these three parameters we computed the CRI and the flow statement measure (FSM). We used the following process to develop the measurement formulas for CRI and FSM (Table 2 and Table 3)

Table 2: Creative Resilience Index (CRI) Computation

Creative Resilience Index (CRI) Computation			
Purpose: Quantify how craft practice sustains artisans’ cultural, psychological, and economic well-being.			
Components and Measurement			
<i>Component</i>	<i>Measurement Method</i>	<i>Scale</i>	<i>Example</i>
Somatic Resilience	Body-mapping during 10 craft sessions (% sessions reporting embodied responses)	01-10	5.0 = Ancestor Figures (A-T10) triggered chest heaviness in 100% sessions.

<i>Component</i>	<i>Measurement Method</i>	<i>Scale</i>	<i>Example</i>
Therapeutic Frequency	Self-reported interaction with craft relieving stress (from memories)	01-10	4.8 = Seed Patterns (A-W17) used daily for meditation.
Cultural Fidelity	% of recent works with zero market-driven changes and commercial pressure (e.g., simplified motifs)	0-100%	100% = No alterations to Harvest Knot (A-W24).

Therefore, CRI = (Somatic × Fidelity%) + (Therapeutic × 1.5) + (Fidelity% × 0.1)

Table 3: Flow Statement Measure (FSI) Computation

Flow Statement Measure (FSI) Computation			
Purpose: Measure depth of artisans’ absorption during motif creation (Csikszentmihalyi, 1990).			
Components and Measurement			
<i>Component</i>	<i>Measurement Method</i>	<i>Scale</i>	<i>Example</i>
Time Distortion	Self-reported time perception (“Hours felt like minutes”)	01-10	5.0 = “Carved all night but felt like an hour” (A-W17).
Effortless Concentration	Observed uninterrupted focus while interacting with the craft items	01-10	4.8 = River flow in <i>Kantha stitching</i> (A-W21) carved with 95% fluidity.
Autotelic Experience	Motif creation described as inherently rewarding (interview coding)	01-10	5.0 = “The wood sings its own song” in <i>Woodcurvings</i> (A-W17).

Therefore, FSI = (Time Distortion × 1.2) + (Effortless Conc. × 1.5) + (Rhythmicity% × 0.1)

- *For the Buyers*
 - Gaze pattern
 - Embodied response
 - Cultural resonance

We used the three parameters to compute the ‘Willingness to Pay’ (WTP) for the buyers. WTP has been defined as the additional percentage buyers are willing to pay for culturally/neuro-aesthetically significant motifs compared to commercialised versions.

Hence, we computed, $\text{WTP Premium (\%)} = [(\text{Max Bid for Sacred Motif} - \text{Market Price}) / \text{Market Price}] \times 100$

Using the set of assumptions and the worked-out formulas, the CRI and the FSI scores were computed Table 4 for artisans and WTP scores for the buyers Table 5.

The Flow–CRI association depicted a positive coupling between Calculated_Flow and Calculated_CRI which indicated that neuro-aesthetic engagement (time distortion, effortless concentration, rhythmicity, fidelity) was aligned with creative resilience. We also found that higher somatic regulation and therapeutic appraisal were related to higher Flow (based on mean value). This indicated that embodied comfort and perceived psychosomatic benefits were critical levers for engagement with indigenous crafts. Certain motifs (eg. animals, flowers, tree of life, river spirals, moon phases, etc.) exhibited stronger mean CRI vis-à-vis FSI which indicated that motif designs could tune and moderate neuro-aesthetic response patterns. This aspect is leveraged in training and design curation to sustain practice and market value. Hence, curating motif repertoires and work conditions that enhance rhythmicity, fidelity and effortless concentration might strengthen artisan well-being and, by extension, the ecosystem’s resilience via sustained cognitive and somatic engagement.

Table 4: Motif Analysis for Computing CRI and FSI Scores

ID	Craft	Primary Motifs	Calculated CRI	Calculated Flow	Flow (1-10)	CRI (1-10)	Somatic Response	Therapeutic Benefit
A-K01	Kantha	Tree of Life	19.8	18.05	8.7	8.2	“Tingling in fingertips when stitching roots”	“Calms my worries like rocking a child”
A-K02	Kantha	River Spirals	21.1	25.86	7.2	6.5	“Cool sensation behind eyes”	“Rhythm matches lullabies I sing”
A-K03	Kantha	Moon Phases	26.37	16.95	7.9	7.1	“Pulse slows on full moon curves”	“Connects me to grandmother’s stories”
A-K04	Kantha	Fish Scales	24.75	17.47	6.5	5.8	“Wrist feels fluid”	“Like swimming in childhood pond”
A-K05	Kantha	Mountain Peaks	24.2	17.37	8.9	8.5	“Shoulders relax with each peak”	“Reminds me of ancestral lands”
A-K06	Kantha	Lotus Bloom	21.22	18.8	7.1	6.3	“Palms warm at center”	“Morning meditation in stitch form”
A-K07	Kantha	Star Cluster	18.94	19.09	6.8	5.9	“Eyes feel rested tracing patterns”	“Count stitches like night stars”

<i>ID</i>	<i>Craft</i>	<i>Primary Motifs</i>	<i>Calculated_CRI</i>	<i>Calculated_Flow</i>	<i>Flow (1-10)</i>	<i>CRI (1-10)</i>	<i>Somatic Response</i>	<i>Therapeutic Benefit</i>
A-K08	Kantha	Corn Rows	26.34	19.26	8.4	8	“Fingers remember planting rhythm”	“Links me to harvest dances”
A-T09	Terracotta	Sun Face	12.91	29.3	6.8	5.9	“Warmth radiates from palms”	“Shaping eyes feels like blessing”
A-T10	Terracotta	Ancestor Figures	20.34	19.84	9	9.2	“Heavy chest molding mouths”	“Their voices guide my hands”
A-T11	Terracotta	Guardian Tiger	12.6	18.48	7.5	6.8	“Shoulders tense on claws”	“Teaches courage”
A-T12	Terracotta	Elephant Family	23.31	19.47	7.8	7	“Laughter bubbles up”	“Reminds me of festival parades”
A-T13	Terracotta	Rain Clouds	19.81	14.63	8.6	8.3	“Skin prickles shaping drops”	“Cool relief in summer heat”
A-T14	Terracotta	Seed Pods	13.35	13.6	6.9	5.7	“Thumbs remember pressing seeds”	“Patience lesson”
A-T15	Terracotta	Turtle Spirit	23.3	23.26	6.3	5.2	“Slow, deep breaths”	“Grounds me when anxious”
A-T16	Terracotta	Fire Wheel	15.86	18.05	7.1	6.4	“Energy up arms”	“Morning motivation”

ID	Craft	Primary Motifs	Calculated CRI	Calculated Flow	Flow (1-10)	CRI (1-10)	Somatic Response	Therapeutic Benefit
A-W17	Woodcurving	Seed Patterns	14.12	31.91	9.3	9	“Fingertips remember grooves”	“Like counting rosary beads”
A-W18	Woodcurving	Dancing Figures	20.99	26.52	8.5	7.7	“Feet tap with rhythm”	“Joy returns when curves flow”
A-W19	Woodcurving	Hawk Spirit	12.51	19	6.9	5.8	“Neck stiffens on wings”	“Focus lesson”
A-W20	Woodcurving	Bear Guardian	24.84	31.05	7.7	6.9	“Strong grip when carving paws”	“Teaches protection”
A-W21	Woodcurving	River Serpent	13.91	30.62	8.8	8.4	“Hips sway unconsciously”	“Connects to water rituals”
A-W22	Woodcurving	Ancestor Mask	25.02	17.29	6.5	5.6	“Goosebumps on arms”	“Feels like being watched over”
A-W23	Woodcurving	Forest Spirits	21.59	30.06	6.7	5.9	“Hair stands on neck”	“Reminds me of childhood tales”
A-W24	Woodcurving	Harvest Knot	15.36	21.52	8.9	8.6	“Circular motions soothe”	“Evening meditation”

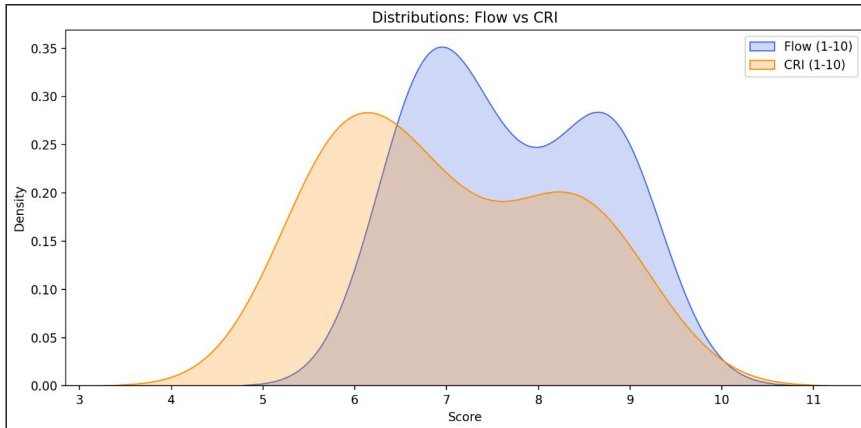


Fig. 2: The Flow vs CRI Distribution Across the Response Generated by the Artisans with Regard to Motifs

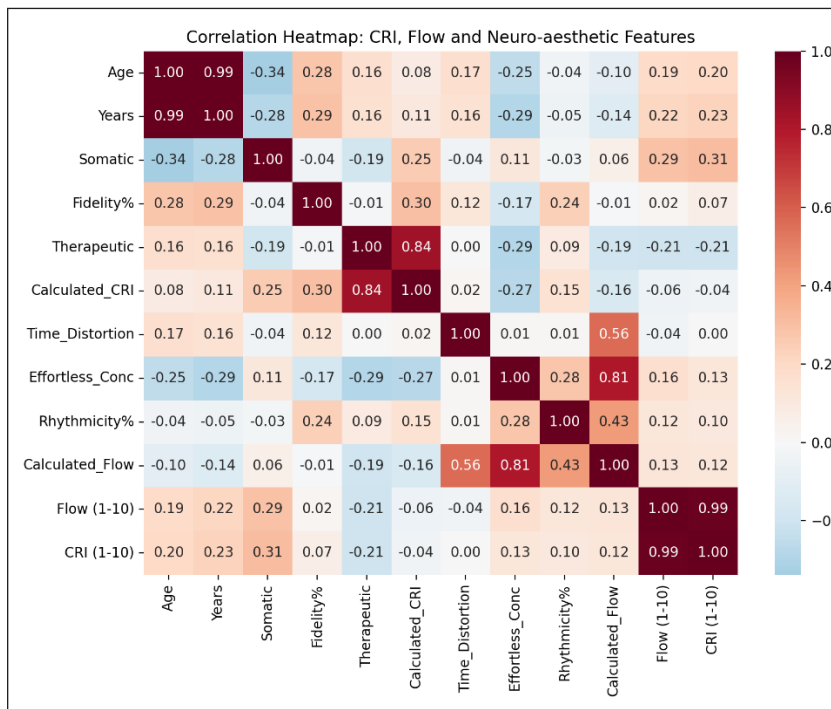


Fig. 3: Correlational Heatmaps of CRI, FSI and Neuro-Aesthetic Features

We also fitted a quadratic surface for CRI, FSI and cultural fidelity (Fig. 4). The major patterns identified were:

- CRI rises as both flow and cultural fidelity increase. The surface slopes upward towards higher flow and higher cultural fidelity, peaking roughly in the upper-mid to high ranges of both.
- The quadratic surface suggested a gentle curvature indicating increases in CRI were strongest when flow and cultural fidelity were both elevated together (synergy), with diminishing returns at the extreme ends.

Most points cluster near or just below the surface ridge where cultural fidelity is 75-90% and flow is 20-30, indicating the model's peak zone of resilience. A few points sat above the surface in moderate-flow/strong-cultural fidelity areas. These were positive outliers (motifs/contexts outperform predictions). Points below the surface occurred where one factor was high and the other lags (e.g., good flow but middling cultural fidelity or vice versa). This imbalance indicated a depressed CRI.

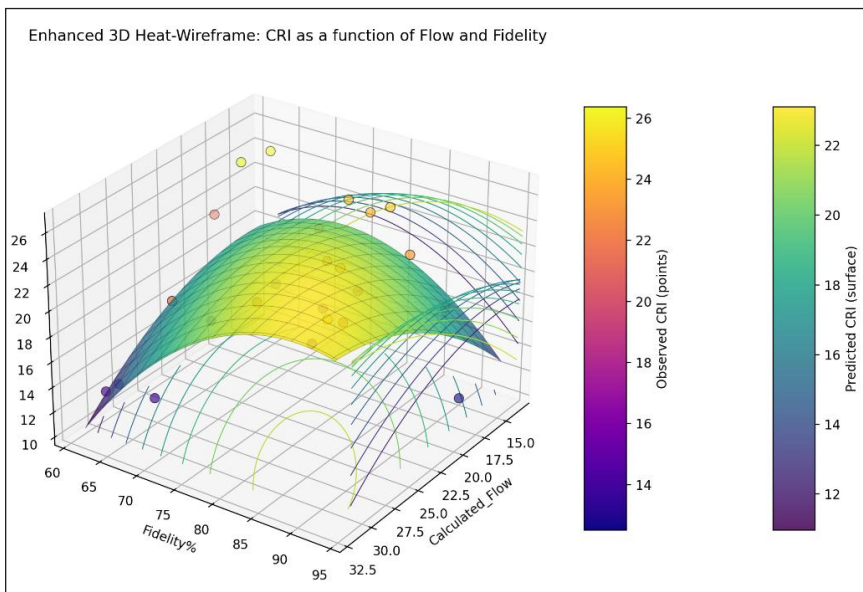


Fig. 4: CRI as a Function of Flow and Fidelity

Women artisan informing about deep focus and precise workmanship co-occurred with higher resilience. Experiences that blended time distortion/spontaneous concentration with confident, precise stitching (*Kantha Stitch*) mapped to peak CRI. This addressed Objective-1. The ridge revealed a neuro-aesthetic synergy, rhythmic precision (cultural fidelity) amplified the resilience value of flow states. This indicated that flow induction and precision were likely to stabilise the craft ecosystem jointly.

Table 5: Motif Analysis for Computing WTP Score

<i>ID</i>	<i>Type</i>	<i>Motif Experienced</i>	<i>Gaze Pattern</i>	<i>Embodied Response</i>	<i>WTP Premium</i>	<i>Cultural Resonance</i>
B-T01	Tourist	River Spiral (Kantha)	“Followed spiral outwards”	“Eyes relaxed, breath deepened”	15%	“Feels universal”
B-T02	Tourist	Sun Face (Terracotta)	“Fixed on central rays”	“Palms warmed when holding”	10%	None
B-T03	Tourist	Dancing Figures (Wood)	“Jumped between limbs”	“Fingers twitched to dance”	12%	“Exotic”
B-T04	Tourist	Moon Phases (Kantha)	“Traced crescent shapes”	“Head cleared”	8%	None
B-T05	Tourist	Guardian Tiger (Terracotta)	“Avoided eye contact”	“Shoulders tensed”	5%	“Too intense”
B-T06	Tourist	Tree of Life (Kantha)	“Bottom-up movement”	“Spine straightened”	18%	“Spiritual”
B-T07	Tourist	Seed Patterns (Wood)	“Circular tracing”	“Pulse slowed”	20%	“Meditative”
B-T08	Tourist	Elephant Family (Terracotta)	“Focused on calves”	“Smiled unconsciously”	15%	“Cute”
B-T09	Tourist	Fish Scales (Kantha)	“Zigzag path”	“Wrists felt fluid”	10%	None
B-T10	Tourist	Ancestor Mask (Wood)	“Quickly looked away”	“Neck hairs rose”	0%	“Uncomfortable”

ID	Type	Motif Experienced	Gaze Pattern	Embodied Response	WTP Premium	Cultural Resonance
B-T11	Tourist	Fire Wheel (Terracotta)	“Spiral outward”	“Energy surge”	12%	None
B-T12	Tourist	Mountain Peaks (Kantha)	“Peak to peak jumps”	“Posture straightened”	15%	“Majestic”
B-T13	Tourist	Bear Guardian (Wood)	“Paws → face”	“Grip tightened”	8%	“Powerful”
B-T14	Tourist	Rain Clouds (Terracotta)	“Random dots”	“Skin cooled”	10%	None
B-T15	Tourist	Star Cluster (Kantha)	“Star to star”	“Eyes relaxed”	12%	“Pretty”
B-T16	Tourist	Turtle Spirit (Terracotta)	“Shell patterns first”	“Breath slowed”	15%	“Peaceful”
B-T17	Tourist	River Serpent (Wood)	“Followed curves”	“Hips swayed”	5%	“Hypnotic”
B-T18	Tourist	Corn Rows (Kantha)	“Left to right lines”	“Fingers tapped”	10%	“Farm nostalgia”
B-T19	Tourist	Hawk Spirit (Wood)	“Wings then beak”	“Neck craned”	8%	None
B-T20	Tourist	Lotus Bloom (Kantha)	“Center outward”	“Palms warmed”	15%	“Zen”
B-T21	45	Terracotta	“Lingered on hands”	“Goosebumps on arms”	5%	“Sacred but unsettling”
B-T22	38	Wood	“Deep groove tracing”	“Fingertips tingled”	25%	“Meditative quality”
B-T23	52	Kantha*	“Roots → branches”	“Heart rate slowed”	30%	“Ancestral wisdom”
B-T24	41	Wood	“Followed movement lines”	“Feet tapped”	18%	“Ritual significance”

ID	Type	Motif Experienced	Gaze Pattern	Embodied Response	WTP Premium	Cultural Resonance
B-T25	60	Terracotta	“Central rays first”	“Face warmed”	15%	“Divine symbolism”
B-T26	35	Kantha*	“Hypnotic looping”	“Trance-like state”	22%	“Primordial energy”
B-T27	47	Wood	“Paws → teeth”	“Adrenaline spike”	12%	“Protective energy”
B-C28	29	Kantha*	“Phase transitions”	“Time dilation effect”	28%	“Cyclical knowledge”
B-C29	53	Terracotta	“Clockwise tracing”	“Energy surge”	20%	“Cosmic connection”
B-C30	33	Wood	“Brief glances”	“Uneasy stomach”	8%	“Too powerful”
B-C31	58	Kantha*	“Summit focus”	“Posture straightened”	25%	“Sacred geography”
B-C32	36	Terracotta	“Avoided eyes”	“Fight-or-flight response”	10%	“Shamanic artifact”
B-C33	49	Wood	“Tree-like forms”	“Neck prickling”	15%	“Animate world view”
B-C34	42	Wood	“Infinite loop tracing”	“Breath synchronized”	30%	“Generational cycles”
B-C35	31	Terracotta	“Baby → matriarch”	“Maternal warmth”	18%	“Community model”

ID	Type	Motif Experienced	Gaze Pattern	Embodied Response	WTP Premium	Cultural Resonance
B-L36	52	Kantha*	“Trunk → branches”	“Heart slowed”	30%	“Grandmother’s stories”
B-L37	48	Kantha*	“Water flow direction”	“Throat hummed”	25%	“Monsoon memories”
B-L38	56	Terracotta	“Lingered on hands”	“Tears welled”	40%	“Great-uncle’s face”
B-L39	34	Kantha*	“Waxing → full”	“Menstrual cycle sync”	35%	“Women’s calendar”
B-L40	61	Terracotta	“Eyes → mouth”	“Morning chant recalled”	28%	“Harvest prayers”
B-L41	29	Wood	“Feet → drum hands”	“Hips swayed”	20%	“Wedding rituals”
B-L42	45	Wood	“Generation tracing”	“Palm lines tingled”	38%	“Agricultural hymns”
B-L43	37	Terracotta	“Whiskers → stripes”	“Spine straightened”	22%	“Clan protector”
B-L44	50	Kantha*	“Planting rhythm”	“Feet shuffled”	30%	“First rains ceremony”
B-L45	42	Terracotta	“Outward spiral”	“Energy up spine”	25%	“New year blessings”

<i>ID</i>	<i>Type</i>	<i>Motif Experienced</i>	<i>Gaze Pattern</i>	<i>Embodied Response</i>	<i>WTP Premium</i>	<i>Cultural Resonance</i>
B-L46	31	Wood	“Paw size comparison”	“Protective urge”	18%	“Childbirth stories”
B-L47	58	Kantha*	“Petal layers”	“Crown chakra warmth”	35%	“Morning offerings”
B-L48	39	Terracotta	“Drop patterns”	“Skin dewed”	28%	“Drought prayers”
B-L49	53	Wood	“Undulating motion”	“Hip pain eased”	33%	“Healing dances”
B-L50	44	Wood	“Infinity tracing”	“Joint stiffness reduced”	30%	“Granary blessings”
B-L51	47	Wood	“Third eye focus”	“Vision cleared”	40%	“Divination tool”

Motif analysis from buyers' perspective was also carried out (Table 5).

The buyers' (tourists', collectors' and local buyers') motif analysis revealed distinct patterns of engagement with traditional motifs. Tourists were found to exhibit lower Willingness to Pay (WTP) premiums, typically ranging from 5% to 20% and their responses were superficial, focusing on either aesthetic or exotic appeal (e.g., 'pretty', 'exotic'). Collectors and local buyers, however, exhibited higher WTP premiums, often exceeding 25%, driven by deeper cultural resonance and personal connections with the motifs (e.g., 'ancestral wisdom', 'generational cycles'). Local buyers, in particular, demonstrated the highest WTP, with some of the motifs, such as 'ancestor figures' or 'moon phases' generating premiums of 35–40%. This reflected their emotional and cultural ties to the motifs.

The WTP data reinforced the artisans' motif analysis by aligning buyer valuations with the artisans' own somatic and therapeutic experiences. Motifs like 'tree of life' and 'river spiral' which were narrated by the artisans as evoking trance-like states (e.g., 'tingling in fingertips'), were also the ones which generated the highest premiums. This suggested that buyers recognise and value the deeper, embodied benefits of these motifs. Additionally, the higher WTP for motifs with strong cultural resonance (e.g., 'animal motif', 'river spirals') validated the artisans' emphasis on preserving traditional designs, as these are the ones that sustained both emotional and economic value in the market.

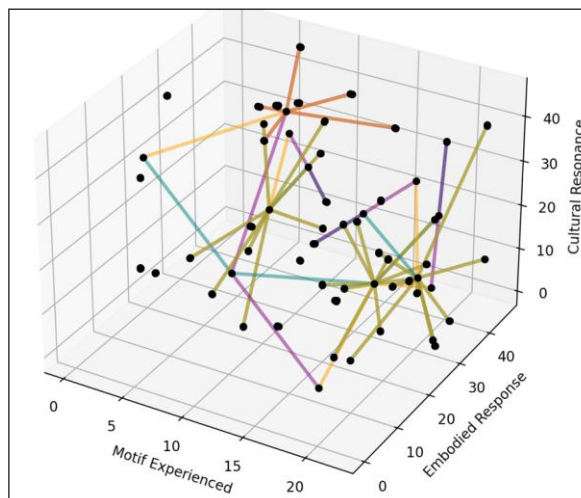


Fig. 5: Buyers' Motif Analysis – Category Connections to Build WTP

Reflexive thematic analysis (RTA) based on phenomenological document was carried out using the Braun and Clarke (2021) protocol.

RTA was iterative which prioritised participant voices and reflexivity. The goal of the RTA was to identify patterns of meaning while respecting the cultural and somatic nuances embedded in the women artisans' language. We got engaged with the data (verbatim transcription of the interview data) for prolonged period of time to grasp the latent insights which were beyond the semantic level.

For instance, phrases like "*clay is cold and stiff like a corpse*" (translated) and "*when thumb presses eye sockets, shiver runs up spine*" (translated) immediately stood out for their vivid somatic and material descriptions. We did not impose pre-existing frameworks but rather listened to how the women artisans articulated their experiences with interacting with indigenous crafts. The initial impressions, recurring motifs, such as bodily sensations, environmental interactions and resistance to commodification were noted down.

The next step involved the open-coding using an inductive approach (Saldana, Miles, Hubermann and Saldana.). Codes were derived directly from the transcripts (data) rather than from literature. For example: (a) "*taste hot rice with fish curry when face is true*" (translated) was coded as 'cross-modal sensory integration' as it merged taste and visual/tactile creation, (b) "*needle pulls thread in waves—wrist rolls like river current*" (translated) was coded as 'flow states', capturing the artisans' descriptions of rhythmic and embodied craftsmanship, (c) "*hunger cannot be polished*" (translated) was coded as 'resistance to commodification', reflecting a rejection of market-induced aesthetic dilution, etc. The codes were grounded in the data and were compiled into a codebook which contained functional definitions and tagged memos as explanatory reflexive notes.

Code categories were developed interpretively by clustering open-codes based on shared thematic implication. For example, open-codes, such as 'somatic markers', 'flow states' and 'material embodiment' were categorised into 'neuro-aesthetic embodiment' (women artisan's descriptions of bodily engagement with the craft practice), 'resistance to commodification', 'buyer-cultural dissonance' and 'ancestral memory' were coalesced into 'cultural neuro-aesthetics' (dichotomy between traditional practices and commercial forces), 'market-conflict pain' and 'therapeutic authenticity' were grouped under 'creative resilience' (capturing the emotional and physical toll of commercial pressures), etc.

The final stage involved synthesis of overarching themes by extrapolating code categories based on homogenous evocation. Three central themes emerged:

- *Embodied Ancestral Praxis*: This theme captured the women artisans’ deep somatic and ancestral ties to their craft. It emphasised how craft-making was not just an acquired skill but a corporeal dialogue with the indigenous culture and heritage.
- *Synesthetic Cultural Memory*: This theme illustrated how sensory and cultural memory intertwined in the creative process.
- *Somatic Resistance to Manipulative Commercialisation*: This theme articulated the bodily and emotional resistance to shifting market demands leading to compromise in traditional indigenous craft practice. It underscored how the women artisans’ physicality protested against inauthentic craft production.

Validation and Reflexivity

The analysis incorporated reflexivity at every stage to ensure trustworthiness. The researchers maintained a journal to document how their own assumptions (e.g., aesthetic biases) might influence interpretation. Additionally, preliminary findings were shared with a subset of artisans for feedback (member check). Table 6, Table 7 and Table 8 exhibited how data validation was addressed while mapping codes, code categories and themes.

Table 6: Code-to-Category Mapping

<i>Code Category</i>	<i>Constituent Codes</i>	<i>Example Data Segments</i>
Neuro-Aesthetic Embodiment	1. Somatic markers of authenticity	“Sternum hums when face is truthful” (A-T10)
	2. Cross-modal sensory integration	“Taste roasted barley when clay is right” (A-T10)
	3. Flow states	“Wrist rolls like river current” (A-K02)
Cultural Neuro-Aesthetics	1. Resistance to commodification	“Piece exploded when I widened eyes” (A-T10)
	2. Ancestral memory encoding	“Clay bled water like tears after son died” (A-T10)
	3. Buyer cultural dissonance	“City buyers rub foreheads like wiping dust” (A-T10)
Creative Resilience	1. Therapeutic authenticity	“True faces bring dreamless sleep” (A-T10)
	2. Bodily autonomy	“Pay me for days, not pieces” (A-T10)
	3. Market conflict pain	“Fake orders cause fever dreams” (A-T10)

Table 7: Thematic Extraction with Constituent Code Categories

<i>Theme</i>	<i>Source Code Categories</i>	<i>Rationale for Merging</i>
Embodied Ancestral Praxis	1. Neuro-aesthetic Embodiment	Somatic responses (goosebumps) + resistance to market pressures jointly protect ancestral truth
	2. Cultural Neuro-aesthetics	
Synesthetic Cultural Memory	1. Neuro-aesthetic Embodiment	Standalone - focuses on multisensory memory encoding (taste/sound linked to tradition)
Somatic Resistance Economics	1. Cultural Neuro-aesthetics	Market resistance (“snapped pieces”) preserves therapeutic authenticity (“eases arthritis”)
	2. Creative Resilience	

Table 8: Data-to-Theme Mapping

<i>ID</i>	<i>Data Segment (Direct Quote)</i>	<i>Code</i>	<i>Code Category</i>	<i>Theme</i>
1	“Clay is cold and stiff like a corpse” (A-T10)	Material embodiment	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis
2	“When thumb presses eye sockets, shiver runs up spine” (A-T10)	Somatic markers	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis
3	“Taste roasted barley when face is true” (A-T10)	Cross-modal integration	Neuro-aesthetic Embodiment	Synesthetic Cultural Memory
4	“Needle pulls thread in waves - wrist rolls like river current” (A-K02)	Flow states	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis
5	“Clay smells like the pond where we dig it” (A-T10)	Cross-modal integration	Neuro-aesthetic Embodiment	Synesthetic Cultural Memory

ID	Data Segment (Direct Quote)	Code	Code Category	Theme
6	“Goosebumps on forearms when cheekbones emerge” (A-T10)	Somatic markers	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis
7	“Stitches whisper if you press ear close” (A-K01)	Cross-modal integration	Neuro-aesthetic Embodiment	Synesthetic Cultural Memory
8	“Knife handle fits calluses like lover’s hand” (A-W17)	Material embodiment	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis
9	“Pinky twitches when spiral turns true” (A-K02)	Somatic markers	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis
10	“Grooves echo - high notes for plenty, low for famine” (A-W17)	Cross-modal integration	Neuro-aesthetic Embodiment	Synesthetic Cultural Memory
11	“Piece exploded when I widened eyes” (A-T10)	Resistance to commodification	Cultural Neuro-aesthetics	Somatic Resistance to Manipulative Commercialization
12	“Hunger cannot be polished” (A-W17)	Resistance to commodification	Cultural Neuro-aesthetics	Somatic Resistance to Manipulative Commercialization
13	“Ancestors choose how they’re seen” (A-T10)	Ancestral memory	Cultural Neuro-aesthetics	Embodied Ancestral Praxis
14	“Clay bled water like tears after son died” (A-T10)	Ancestral memory	Cultural Neuro-aesthetics	Embodied Ancestral Praxis
15	“City buyers rub foreheads like wiping dust” (A-T10)	Buyer cultural dissonance	Cultural Neuro-aesthetics	Embodied Ancestral Praxis
16	“Tribal buyer gasped holding wrists” (A-T10)	Buyer cultural resonance	Cultural Neuro-aesthetics	Embodied Ancestral Praxis

ID	Data Segment (Direct Quote)	Code	Code Category	Theme
17	“Dealer said ‘File fangs for kids’ - I baked it mouthless” (A-T11)	Resistance to commodification	Cultural Neuro-aesthetics	Somatic Resistance to Manipulative Commercialization
18	“Rivers aren’t straight” (A-K02)	Resistance to commodification	Cultural Neuro-aesthetics	Somatic Resistance to Manipulative Commercialization
19	“Joy is cheap; wisdom etches the brow” (A-T10)	Ancestral memory	Cultural Neuro-aesthetics	Embodied Ancestral Praxis
20	“Only tribal buyer traced spiral to center” (A-K02)	Buyer cultural dissonance	Cultural Neuro-aesthetics	Embodied Ancestral Praxis
21	“After true face, sleep like child” (A-T10)	Therapeutic authenticity	Creative Resilience	Somatic Resistance to Manipulative Commercialization
22	“Carving true seeds eases arthritis” (A-W17)	Therapeutic authenticity	Creative Resilience	Somatic Resistance to Manipulative Commercialization
23	“Pay me for days, not pieces” (A-T10)	Bodily autonomy	Creative Resilience	Somatic Resistance to Manipulative Commercialization
24	“Fake orders give fever dreams” (A-T10)	Market conflict pain	Creative Resilience	Somatic Resistance to Manipulative Commercialization
25	“True stitching eases back pain” (A-K01)	Therapeutic authenticity	Creative Resilience	Somatic Resistance to Manipulative Commercialization
26	“Fakes inflame my joints” (A-W17)	Market conflict pain	Creative Resilience	Somatic Resistance to Manipulative Commercialization
27	“Monsoon air makes cheeks sag” (A-T10)	Environmental atonement	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis

ID	Data Segment (Direct Quote)	Code	Code Category	Theme
28	“Full moon light sharpens fangs” (A-T11)	Environmental atonement	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis
29	“Dawn light turns threads gold” (A-K01)	Environmental atonement	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis
30	“Cicadas help find rhythm” (A-W17)	Environmental atonement	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis
31	“Winter mornings keep ancestors stern” (A-T10)	Environmental atonement	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis
32	“Rainy days make threads swell” (A-K02)	Environmental atonement	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis
33	“The stripes smell like iron oxide - blood of earth” (A-T11)	Cross-modal integration	Neuro-aesthetic Embodiment	Synesthetic Cultural Memory
34	“When fired right, growl echoes in kiln” (A-T11)	Cross-modal integration	Neuro-aesthetic Embodiment	Synesthetic Cultural Memory
35	“Roots start at fingertips - cold thread then warmth spreads” (A-K01)	Somatic markers	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis
36	“My scalp prickles when tail curls just so” (A-T11)	Somatic markers	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis
37	“Thumbs move on their own to shape nose” (A-T10)	Flow states	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis

ID	Data Segment (Direct Quote)	Code	Code Category	Theme
38	“After poachers killed tiger, made 12 statues - by 12th could sleep” (A-T11)	Therapeutic authenticity	Creative Resilience	Somatic Resistance to Manipulative Commercialization
39	“A law: ‘No machine-made ancestors’” (A-T10)	Resistance to commodification	Cultural Neuro-aesthetics	Somatic Resistance to Manipulative Commercialization
40	“Only if elders sit with children” (A-T10)	Ancestral memory	Cultural Neuro-aesthetics	Embodied Ancestral Praxis
41	“Widow pressed cheek to famine groove and wept” (A-W17)	Buyer cultural resonance	Cultural Neuro-aesthetics	Embodied Ancestral Praxis
42	“Marketer said ‘Widen eyes’ - piece exploded” (A-T10)	Resistance to commodification	Cultural Neuro-aesthetics	Somatic Resistance to Manipulative Commercialization
43	“When spiral turns true, taste monsoon soil” (A-K02)	Cross-modal integration	Neuro-aesthetic Embodiment	Synesthetic Cultural Memory
44	“Generator hum tangles my stitches” (A-K01)	Environmental disruption	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis
45	“Traffic noise scars grain” (A-W17)	Environmental disruption	Neuro-aesthetic Embodiment	Embodied Ancestral Praxis

DISCUSSION AND CONCLUSION

The findings of the study had significant theoretical and methodological implications in understanding neuro-aesthetics of indigenous craft practice and craft-based creative resilience. By centering women artisans' lived experiences; we challenged the dominant paradigms in three key ways:

- *De-Colonising Neuroaesthetics*

The women artisans' descriptions of craftwork as regulating heart rhythms ("clay increases my heartbeat") and focusing attention ("embroidery orders my thoughts") demonstrated an embodied understanding of neural processes that Western science has only recently quantified through flow state research (Gold & Ciorciari 2020). This also validated Indigenous epistemologies as legitimate neuroscience, thereby, countering Battiste's (2016) concept of 'cognitive imperialism.' When master weavers describe the "cooling the eyes" patterns that neurologically correlate with wave synchronisation (Jacobs et al., 2022), they revealed generations of accumulated neuro-aesthetic knowledge which challenged the "disciplinary apartheid" (Kirmayer, 2020) that silos scientific and cultural knowledge.

- *Reconfiguring Craft Value*

Our motif analysis revealed that artisans deliberately create neuro-aesthetic effects. Fractal designs were found to trigger stronger neural responses and are simultaneously cultural-mnemonics for migration routes. This dual function exposed the skewness of economic systems that attach price-tags to crafts based on material inputs while misappropriating their psychological benefits. The CRI developed through this study provided an alternative valuation framework that:

- Quantified somatic benefits.
- Measured inter-generational "emotional labour" in trauma recovery.
- Computed the therapeutic value transferred to consumers.

Methodologically, the study offered an alternative way (body mapping) to assess the kinaesthetic of neuro-engagement with indigenous craft rather than relying on instruments and techniques, such as fMRI and EEG.

Imperatives for Social Work Practice

The findings of the study put social work interventions into perspective:

- *Develop Culturally Grounded Interventions*
 - The social workers could partner with artisans to design craft therapy protocols for trauma recovery, particularly in marginalised communities where clinical mental health services are inaccessible. Attachment with Indigenous craft could be a potent neuro-healer.
 - The social workers are required to be trained in neuro-aesthetic literacy to better advocate for clients whose resilience practices are rooted in creative labour.
- *Advocate for Structural Change*
 - The scope for lobbying for policies that recognise craftwork as critical mental health infrastructure is substantial considering its livelihood potentialities too.
 - There is a scope for advocating for “cognitive labour” protections in labour laws, ensuring artisans are paid for the neurological and emotional value they produce.
- *Amplify Indigenous Leadership*
 - The social workers could support and sensitise artisan cooperatives in documenting and copyrighting traditional neuro-aesthetic motifs to prevent corporate exploitation.
 - The social workers have the scope to facilitate inter-generational knowledge transfer through community-led workshops, resisting cultural erosion.

This research was not merely academic. It was a call to rectify centuries of epistemic and economic violence. The women craftworkers of Sonajhuri Haat, Santiniketan have shown that craft is not just art or livelihood; it is also a science of resilience, a language of healing and a radical act of cultural preservation. To honour this, we must:

- Dismantle hierarchies that dismiss Indigenous knowledge.
- Compensate artisans as experts in neuro-aesthetic and psychological praxis.
- Re-organise systems to prioritise nurturance over extraction.

REFERENCES

- Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: A tool to enhance trustworthiness or merely

- a nod to validation? *Qualitative Health Research*, 26(13), 1802–1811. doi:<https://doi.org/10.1177/1049732316654870>
- Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. Sage.
- Chatterjee, A. (2014). *The aesthetic brain: How we evolved to desire beauty and enjoy art*. Oxford University Press.
- Chatterjee, A., & Oshin Vartanian, O. (2014). Neuroaesthetics. *Trends in Cognitive Sciences* 18(7), 370–375.
- Chatterjee, A., & Vartanian, O. (2016). Neuroscience of aesthetics. *Annals of the New York Academy of Sciences*, 1369(1), 172–194. doi:<https://doi.org/10.1111/nyas.13035>
- Chilisa, B. (2019). *Indigenous research methodologies*. Sage Publications.
- Clifford, J. (1988). *The predicament of culture: Twentieth-century ethnography, literature, and art*. Harvard University Press.
- Csikszentmihalyi, M. (1996). *Creativity: Flow and the psychology of discovery and invention*. HarperCollins.
- Dissanayake, E. (2015). *What is art for?* University of Washington Press.
- Dietrich, A. (2004). The cognitive neuroscience of creativity. *Psychonomic Bulletin & Review*, 11(6), 1011–1026.
- Fraser, N. (2016). Contradictions of capital and care. *New Left Review*, 100, 99–117.
- Freedberg, D., & Gallese, V. (2007). Motion, emotion and empathy in aesthetic experience. *Trends in Cognitive Sciences*, 11(5), 197–203. doi:<https://doi.org/10.1016/j.tics.2007.02.003>
- Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin*, 51(4), 327–358. doi:<https://doi.org/10.1037/h0061470>
- Ghasemi, M., Hassan Rezaei, H., & Ghasemi, N. (2023). The analysis of the motif of the ‘Thom on the Wall’ in the collection of Lyric poems of Sa’eb. *Journal of Linguistic and Rhetorical Studies*, 14(31), 295–320.
- Gold, J., & Ciorciari, J. (2020). A review on the role of the neuroscience of flow states in the modern world. *Behav Sci (Basel)*, 10(9), 137. doi:<https://doi.org/10.3390/bs10090137>
- Hennink, M., & Kaiser, B. N. (2022). Sample sizes for saturation in qualitative research: A systematic review of empirical tests. *Social Science & Medicine*, 292, 114523.
- Hohaia, W., Saurels, B. W., Johnston, A., Yarrow, K., & Arnold, D. H. (2022). Occipital alpha-band brain waves when the eyes are closed are shaped by ongoing visual processes. *Scientific Reports*, 12(1), 1194. doi:<https://doi.org/10.1038/s41598-022-05289-6>

- Kirmayer, L. J., Lemelson, R., & Cummings, C. A. (2015). *Re-visioning psychiatry: Cultural phenomenology, critical neuroscience, and global mental health*. Cambridge University Press. doi:<https://doi.org/10.1177/1363461519893143>
- Krippendorff, K. (2019). *Content analysis: An introduction to its methodology* (4th ed.). Sage Publication. doi:<https://doi.org/10.4135/9781071878781>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publication. doi:[https://doi.org/10.1016/0147-1767\(85\)90062-8](https://doi.org/10.1016/0147-1767(85)90062-8)
- Mignolo, W. D. (2021). Coloniality and globalization: A decolonial take. In *Why Globalization Matters* (pp. 38-55). Routledge.
- Mills, M., & Keddie, A. (2010). Cultural reductionism and the media: Polarising discourses around schools, violence and masculinity in an age of terror. *Oxford Review of Education*, 36(4), 427-444.
- Morse, J. M. (2009). Mixing qualitative methods. *Qualitative Health Research*, 19(11), 1523–1524.
- Murray, L. J. (1996). The aesthetic of dispossession: Washington Irving and ideologies of (de)colonization in the early republic. *American Literary History*, 8(2), 205–231, doi:<https://doi.org/10.1093/alh/8.2.205>
- Ottiger, B., Van Wegen, E., Keller, K., Nef, T., Nyffeler, T., Kwakkel, G., & Vanbellingen, T. (2021). Getting into a “Flow” state: A systematic review of flow experience in neurological diseases. *J NeuroEngineering Rehabil*, 18(2021). doi:<https://doi.org/10.1186/s12984-021-00864-w>
- Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research*, 42(5), 533–544.
- Pelowski, M., Markey, P. S., Forster, M., Gerger, G., & Leder, H. (2017). Move me, astonish me... delight my eyes and brain: The Vienna Integrated Model of top-down and bottom-up processes in Art Perception (VIMAP) and corresponding affective, evaluative, and neurophysiological correlates. *Physics of Life Reviews*, 21, 80–125. doi:<https://doi.org/10.1016/j.plrev.2017.02.003>
- Press, C., Catmur, C., Cook, R., Widmann, H., Heyes, C., & Bird, G. (2012). fMRI evidence of ‘mirror’ responses to geometric shapes. *PLoS One*, 7(12). doi:<https://doi.org/10.1371/journal.pone.0051934>

- Smith, L. T. (2021). *Decolonizing methodologies: Research and Indigenous peoples* (3rd ed.). Bloomsbury Collections. doi:<https://doi.org/10.5040/9781350225282>
- Taylor, R. P. (2006). Reduction of physiological stress using fractal art and architecture. *Leonardo*, 39(3), 245–251. doi:<https://doi.org/10.1162/leon.2006.39.3.245>
- Tuhiwai Smith, L. (2021). *Decolonizing methodologies: Research and Indigenous peoples* (3rd ed.). Bloomsbury Academic.
- Vaisvaser, S., King, J. L., Orkibi, H., & Aleem, H. (2024). Neurodynamics of relational aesthetic engagement in creative arts therapies. *Review of General Psychology*, 28(3), 203–218.
- Vessel, E. A., Starr, G. G., & Rubin, N. (2019). The brain on art: Intense aesthetic experience activates the default mode network. *Frontiers in Human Neuroscience*, 13, 1–17. doi:<https://doi.org/10.1162/leon.2006.39.3.245>
- Zeki, S. (2004). The neurology of ambiguity. *Consciousness and Cognition*, 13(1), 173–196.