

# Vernacular craft revival through design thinking: Palm leaf convocation folder

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## Abstract

This report documents the revival of palm leaf weaving traditions through the collaborative design of a convocation certificate folder. The project was conducted with local artisans in Andhra Pradesh to explore how vernacular craft practices might be repurposed for contemporary ceremonial contexts. Palm leaves, traditionally employed as carriers of sacred and scientific knowledge, were both the material and conceptual anchors of the project. Ethnographic fieldwork, material experimentation and iterative prototyping were used to co-create the artifact with artisans who practice near-extinct weaving techniques. The resulting prototype not only demonstrates ecological advantages over conventionally used materials but also supports cultural continuity by integrating traditional craft into academic protocols. This publication highlights the potential of design-led interventions to sustain traditional knowledge systems, offering pathways for cultural preservation, sustainable material innovation and improved livelihood opportunities for artisan communities.

**Keywords:** Artisan collaboration, Palm leaf weaving, Sustainable design, Traditional knowledge

## 1. Introduction

Palm leaves have been cultural and material reference points in south India for centuries, used in manuscripts, ritual items and domestic weaving. Their status as vehicles for scientific and sacred knowledge reflects both cultural and ecological values. However, with the development of artificial alternatives and declining populations of artisans, numerous palm-leaf weaving communities are now close to extinction (Krishnaraj *et al.*, 2022). Reviving such practices involves adapting culturally significant applications that are appropriate to contemporary needs. Indian universities today use petrochemical-derived convocation folders made of polyurethane or leatherette laminated paperboard. Designing a folder made from palm leaves presents an alternative that meets ecological performance, continuity of craft and livelihood value, alongside ceremonial and sustainability objectives (Bissett and Moorhead, 2019).

The literature on designer–artisan collaboration is promising but notable gaps remain. Case studies indicate that although co-design often results in new products, the long-term effects on livelihoods and respect for artisan identity are frequently underreported (Hu *et al.*, 2023). Global reviews highlight obstacles such as conflict, differing modes of

thinking and poor coordination among actors, necessitating more effective process architecture (Hu *et al.*, 2025). Multilevel collaboration frameworks with stage-gated approaches that connect institutional buyers, producer organizations and workshop practices demonstrate how systemic alignment can enhance craft revitalization (Hu *et al.*, 2025). From a science and technology studies perspective, "cultures of design" methods emphasize that artisans should be situated as cultural producers whose knowledge directly informs specifications and evaluation criteria (Bofylatos and Spyrou, 2017). Similar perspectives emphasise the role of collaborative knowledge construction between designers and craft communities, where design practice becomes a means of social change and livelihood support (Mamidipudi, 2018).

Ethical critiques of Latin American basketry partnerships' also caution against unbalanced decision-making, highlighting the need for co-authorship, fair benefit sharing and open governance (Lavin, 2019). Strategies for eliciting and documenting tacit knowledge such as weave counts, jointing techniques and finishing recipes, have been suggested as a means of linking artisanal know-how and

institutional quality control standards (Bofylatos and Spyrou, 2017). Specific weaving revival projects, including those involving bamboo, rush and Malaysian kelarai bertam research, demonstrate how iterative prototyping, motif adaptation and mutual learning can maintain craft identity while creating new product categories (Bairagi, 2023; Hasan *et al.*, 2025).

Against this backdrop, no earlier work documents an Andhra-centered, design thinking-driven palm-leaf convocation folder incorporating ecological testing, cultural attribution and livelihood measures. This communication therefore documents the co-design of such a folder with artisans and illustrates how vernacular craft knowledge can be integrated into academic rituals as a replicable model for cultural revival and sustainable design.

## 2. Materials and methods

The research was conducted during doctoral coursework at the School of Planning and Architecture, Vijayawada, with the objective of creating a convocation certificate folder through Andhra Pradesh palm-leaf weaving traditions. Two master craftsmen practising near-extinction plait and twill methods were identified through field visits and recommendations. Both provided prior oral consent for interviews, process documentation and the development of a prototype, along with agreement regarding acknowledgement and remuneration.

The palm leaves used for this study were obtained from the *Borassus flabellifer* L. (Asian palmyra palm), locally known as “*thati chettu*” and the processed leaves are referred to as “*Tati Aaku*” in Telugu. This species is a tall, dioecious, fan-leaved palm belonging to the family Arecaceae (Plate 1a) and is commonly found across the dry plains and coastal regions of Andhra Pradesh. It grows erect, with a columnar trunk and a crown of fan-shaped,

leathery leaves measuring 3–4 m in diameter, pale green to yellowish-green in colour. Leaves were collected from naturally growing palms on the outskirts of settlements in coastal Andhra Pradesh, where the species occurs abundantly. Collection took place during the late winter to early summer season (January to March), when leaves reach full size and pliability suitable for splitting and weaving. Only mature, healthy leaves were selected from accessible fronds to ensure sustainable harvesting. The characteristic fan-shaped (palmate) morphology of these large leaves (Plate 1b), which can span 1–1.5 m in diameter, provides long, strong fibres ideal for splitting into weaving strips. The collected leaves were sun-dried, trimmed and conditioned before strip preparation and weaving by artisans. Local palm leaves were prepared through cutting, splitting and smoothing into strips. Auxiliary tools consisted of knives, hand needles, cotton threads and basic templates. Fieldwork involved a combination of village visits, semi-structured interviews and participant observation to document traditional preparation techniques, weaving patterns and cultural significance.

Co-creation workshops with craftspeople converted traditional weaves into folder panels. Trials examined strip widths, weave densities, edge treatments and fold characteristics in order to optimize stiffness, durability and smoothness. Different stages of prototype development, as shown in Plate 2, including woven palm-leaf shells and completed folders, were produced and evaluated by faculty members and peers to determine ceremonial appropriateness.

Documentation was in the form of photographs, fieldnotes, sketches and prototype samples (Fig. 1 & Fig. 2). Time needed for weaving and assembly was also recorded. Initial comparison with synthetic folders showed that palm leaves have advantages in terms of natural content, reduced use of petrochemicals and cultural continuity.

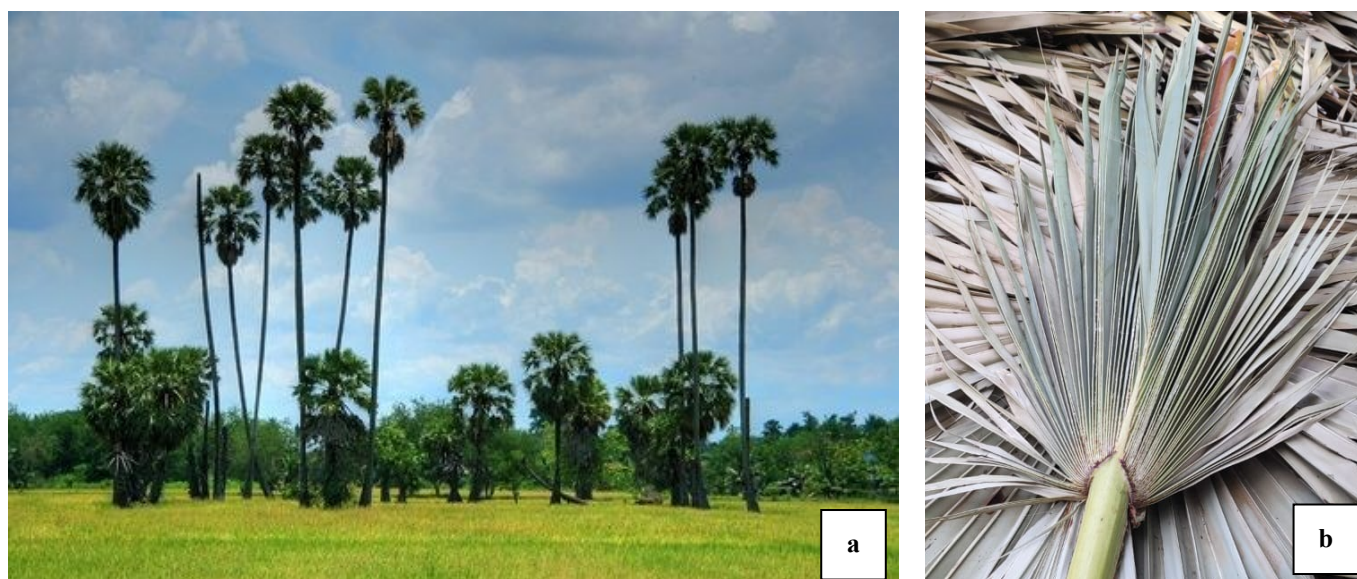


**Plate 1.** (a). Habit of the Asian Palmyra palm (*Borassus flabellifer* L.), locally known as “*Thati chettu*,” showing tall, fan-leaved crown; (b). Close-up of the palm leaf (*tati aaku*) used for weaving, showing fibrous texture suitable for strip preparation

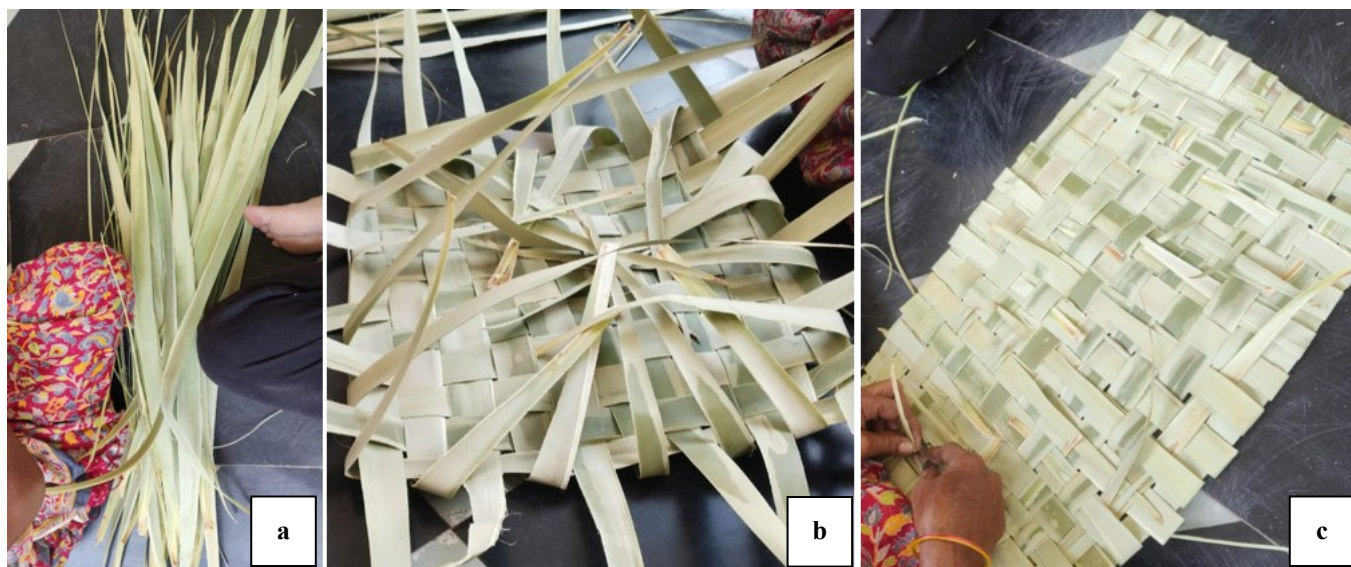


**Plate 2.** Sequence of artisan preparation: (a). Leaf strip splitting; (b). Weaving of strips; (c). Final weaving of panels for the convocation folder



**Fig. 1.** Artisans known craft



**Fig. 2.** Rough prototype

### 3. Results and discussion

#### 3.1. Co-creation and technique documentation

The research resulted in a functional palm-leaf convocation folder prototype, as shown in Fig. 3 and Fig. 4, along with technique sheets encapsulating artisan know-how, preliminary performance observations and a screening-level sustainability comparison. In collaboration with two experienced practitioners in Andhra Pradesh, conventional plait and twill weaves were adapted for folder panels. Strip preparation methods, weaving counts, joining techniques and finishing processes were documented through written records and photographs, providing a repository for apprenticeship, quality control and authorship. This approach responds to calls within designer–artisan scholarship to transcend "productive participation" and move towards collaborative authorship and cultural credit (Mamidipudi, 2018; Hu *et al.*, 2023). Recording tacit technical knowledge also bridges craft pedagogy and institutional quality demands (Bofylatos and Spyrou, 2017), as highlighted in recent methodological research.

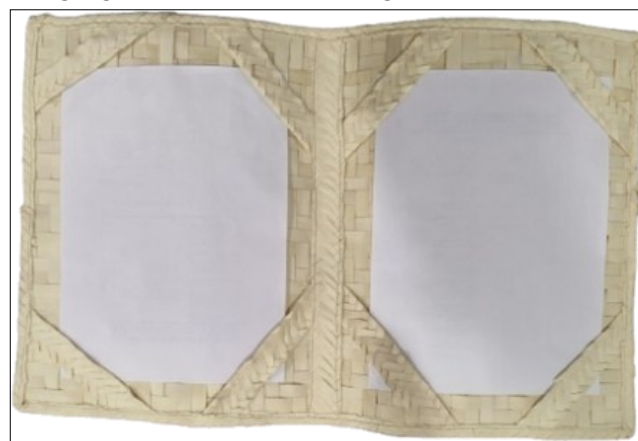


**Fig. 3.** Folder prototype inside



**Fig. 4.** Final Prototype

### 3.2. Prototype development and performance

Three prototype iterations were produced. The initial woven shells exhibited hinge fatigue and edge fraying. These issues were addressed by re-orienting plait angles, incorporating cotton webbing for hinges and binding the edges with braided leaf. Interior smoothness was improved by reducing the weave counts, although this came at the cost of increased preparation time. Wax-based finishing tests minimized curling under humid conditions but required further evaluation. Such iterative tuning resonates with weaving revitalization case studies in which vernacular methods were adapted to new product applications (Lavin, 2019; Hasan *et al.*, 2025). The process shows that procurement-relevant performance can be achieved without eroding cultural identity, although standardized testing (fold endurance, Cobb testing, RH cycling and rub fastness) remains necessary.

### 3.3. Sustainability and livelihood indicators

In contrast to standard polyurethane or leatherette folders, the palm-leaf concept reduced petrochemical content, relied on low-energy manual operations and ensured separability at end-of-life. Although these effects are indicative rather than quantified, they suggest environmental advantages. Existing literature cautions against overstatement and recommends stepwise capacity building to enable more rigorous evaluation (Hu *et al.*, 2025). Time-motion estimates indicated two potentially viable production trajectories: (i) all-leaf shells with integral hinges for repairability and (ii) hybrid leaf-over-board types for stiffness. These approaches may enable skill-based pricing, addressing issues of undervaluing craft labour. Interactions with artisans generated modest short-term income and created assets (technique sheets and test plans) that can support subsequent orders. Similar research on bamboo and fibre craft partnerships shows that such groundwork can contribute to skill enhancement and sustainable livelihoods (Bairagi, 2023).

### 3.4. Pedagogical uptake

At School of Planning and Architecture, Vijayawada, the folder prototype was used in studio critiques as a representation of "tradition as contemporary design

pedagogy." Students cited the process in their own work on vernacular materials, suggesting its potential integration into academic culture. This reflects the multilevel co-design principle that artifacts can function as boundary objects to coordinate knowledge across domains (Mamidipudi, 2018; Hu *et al.*, 2023).

### 3.5. Limitations and future directions

This study was constrained by the sample size (two artisans), the scope of a single researcher and the absence of laboratory testing. The observations are qualitative and the sustainability comparison remains at the screening level. Identified risks include dependence on a limited number of practitioners and the material's sensitivity to moisture. Future research should include larger artisan cohorts, undertake standardised quality assurance testing and document environmental inventories. Procurement pilots should incorporate clear attribution, opportunities for apprenticeship and adequate compensation, as noted in ethical recommendations for equitable designer-artisan partnerships (Lavin, 2019; Hu *et al.*, 2023).

### 3.6. Contribution

Based on the literature reviewed in this study, no prior work was identified that specifically documents a palm-leaf convocation folder from Andhra Pradesh integrating vernacular weaving practices with procurement-oriented design, sustainability considerations and cultural attribution. This research illustrates how conventional weaving practices can be co-created for ceremonial purposes, generating both cultural and ecological value. The study contributes a reproducible model for integrating vernacular craft knowledge into institutional artifacts that sustains artisan agency and sustainable livelihoods.

## 4. Conclusion

In this research, two palm-leaf weaving practitioners in Andhra Pradesh co-created a convocation certificate folder. Vernacular plait and twill techniques were translated into a ceremonial object through ethnographic research, participatory prototyping and iterative design reviews. The outcomes included functional prototypes, technique sheets and preliminary sustainability comparisons with standard polyurethane folders. The results demonstrate that conventional weaving forms can be optimized for hinge strength, edge integrity and surface smoothness while retaining cultural identity. As discussed through the co-creation process and technique documentation, the collaborative approach positioned artisans as cultural producers rather than auxiliary labour, reinforcing ethical principles of authorship, recognition and equitable participation in craft-design partnerships. The folder recontextualizes palm leaf, previously a vessel of sacred and scientific knowledge, as a modern academic container, thereby reinforcing cultural continuity in institutional rituals. Environmentally, the prototypes demonstrate indicative benefits including reduced petrochemical content, low-energy manual processing and end-of-life separability. Although constrained by a small sample and qualitative

testing, the research opens pathways for pilot procurement, standardized performance assessment and livelihood monitoring. In this way, the study offers a replicable model for integrating vernacular craft knowledge into university ceremonies, aligning tradition with sustainability and artisan well-being.

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## Declarations

**Conflict of Interest Statement:** The authors declare that there are no competing financial, institutional, or personal conflicts of interest related to this research.

**Funding Statement:** This research received no specific financial allocation from any funding agency in the public, commercial, or non-profit sectors.

**Data Availability Statement (DAS):** The empirical datasets, field observations, photographs and supporting materials used in this study are available from the corresponding author upon reasonable academic request.

**Author Contributions (CRediT Taxonomy):** Tadiboina Samantha Kumar (Author 1): Conceptualization, Methodology, Investigation, Fieldwork, Data Collection, Material Preparation, Prototyping, Formal Analysis, Visualization, Writing-Original Draft. Ramesh SriKonda (Author 2): Conceptualization, Methodology, Supervision, Validation, Writing-Review & Editing.

**Ethical Approval Statement:** This study involved documentation of traditional knowledge through interviews, observations and collaborative design activities with local artisans. The research did not involve clinical investigations, animal experimentation, or interventions requiring formal Institutional Ethics Committee approval. Therefore, formal ethical approval was not applicable. The study was conducted in accordance with accepted ethical principles for research involving traditional knowledge and community participation.

**Informed Consent Statement:** Prior informed consent was obtained from all participating artisans and traditional knowledge holders before conducting interviews, documenting traditional practices, taking photographs and

developing the prototype. Participants voluntarily agreed to participate in the study and to the academic documentation of their traditional knowledge.

**Declaration of Generative AI and AI-Assisted Technologies in the Manuscript Preparation Process:** During the preparation of this manuscript, the authors used OpenAI ChatGPT to assist with language refinement, grammar improvement, sentence organization and formatting of the manuscript. All scientific content, study design, field observations, data interpretation, conclusions and final editorial decisions were independently reviewed, verified and approved by the authors. The authors accept full responsibility for the accuracy, originality, integrity and scientific validity of the published work.

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