

CULTURAL AESTHETICS IN DESIGN LEARNING: BUILDING SPARSH, AN EMOTIONALLY DURABLE HYBRID GRINDER THROUGH NAVARASA AND EDD9

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ABSTRACT

This paper examines the journey of learning emotional design from an Indian aesthetics perspective. The research was initiated by the question of why most contemporary appliances seemed impersonal and easily replaceable, unlike traditional tools once cherished by families. This question led to research into whether emotion, memory, and culture could be designed into everyday products and what such an approach might signify for design education in India. The Navarasa framework, a classical Indian aesthetic theory of nine emotional states, was examined and integrated with Jonathan Chapman's Emotional Durability Design Nine (EDD9) framework in order to establish a hybrid approach. This integration resulted in CEEDD9 (Culturally Embedded Emotional Durability Design Nine), a pedagogical framework for emotionally durable design learning. Through this reflective, learning-by-doing process, emotional design was understood as not merely user satisfaction but as engagement with empathy, care, and context. Ethnographic fieldwork with 27 Indian households and emotional mapping workshops involving 150 products were carried out using Navarasa cards. These interactions highlighted that the emotional durability of products is rooted in rituals, sensory engagement, and personal narratives. Thematic analysis of the mapping activities identified five positive emotional states Shringara (love), Hasya (joy), Karuna (compassion), Adbhuta (wonder), and Shanta (peace) as the strongest contributors to product attachment within domestic life. This understanding manifested in Sparsh, an emotionally durable mixer grinder that drew inspiration from the old silbatta. Made of wood, stone, glass, and brass, it reintroduced slowness, tactility, and visual honesty back to cooking. The study positions sustainability as an outcome of emotional attachment rather than efficiency alone, demonstrating how culturally grounded frameworks can support emotionally and contextually sensitive design learning within engineering and product design education.

Keywords: Emotional durability, Navarasa, cultural frameworks, design education, product attachment, Indian aesthetics

1 INTRODUCTION

Engineering and product design education has increasingly realised that successful products are not only based on how well they perform technically, but also on what the emotional meaning of the product is for the user and the long-term relationship developed with the user. Products designed with both narrative and sensory value are likely to be retained, thus supporting sustainability through longer periods of use [1,2,4]. While emotional durability as a concept is recognised, it is not operationalised in the design learning process. Emotional design frameworks develop from Western sources and are based on the universality of emotional response [1,3], which may overlook culturally embedded systems from which emotional meaning is generated through everyday practices. In studio environments, students often prioritise functional and aesthetic characteristics over emotional intention during ideation. However, culturally embedded emotional frameworks are still absent from product design pedagogy [6,7]. As a result, students often lack structured methods for translating culturally situated emotional insights into actionable design decisions. This paper reflects on a master's thesis-based learning experience in which a Culturally Embedded Emotional Durability Framework, CEEDD9, a pedagogical framework operationalised through card-based emotional mapping and reflective evaluation, was developed by merging Emotional Durability Design Nine (EDD9) [2] and India's Navarasa aesthetic theory. EDD9 provided strategies for long-term attachment, while Navarasa contributed culturally

grounded emotional interpretation. A reflective practice perspective [5] is used to examine how the development of CEEDD9 informed the learning developed while designing Sparsh, a hybrid grinder designed to be emotionally durable, and to explore how CEEDD9 informed, challenged and limited student learning.

2 BACKGROUNDS: EMOTION, CULTURE AND DESIGN LEARNING

Research on emotional design has shown that interactions between users and products are influenced by more than functional capabilities; they include meanings associated with a product, memories made using it, and its relation to identity [3]. Norman discusses emotional engagement at visceral, behavioural, and reflective levels, while Chapman indicates that creating products with long-lasting emotion results in longer use and less frequent replacement or disposal [1]. The Emotional Durability Design Nine (EDD9) framework translates these theories into practical strategies for continued emotional engagement through narrative, materials, and supporting long-term relationships between products and users [2]. Although emotional durability has received increasing academic attention, operationalising it within design education remains challenging. Studio education relies on reflection-through-making, where learning occurs between actions performed and critique received [5]. Without structured scaffolding, emotional reasoning often remains implicit, and emotional interpretation is culturally located rather than universally understood [6]. As a result, students may struggle to translate emotional and cultural insights into consistent design decisions during studio-based learning. In Indian domestic settings, meaning is formed through use, sensory experience, and family memory. The Navarasa framework, derived from Bharata Muni's Nāṭyaśāstra and later expanded by Abhinavagupta to include the ninth rasa (peace), is a classical Indian aesthetic theory describing nine emotional states experienced through human interaction and expression. Traditionally applied in performance, literature, and visual arts, Navarasa provides a culturally grounded structure for interpreting emotional experience but has rarely been explored within product design pedagogy [8]. To address this pedagogical gap, CEEDD9 (Culturally Embedded Emotional Durability Design Nine) was developed as a pedagogical framework integrating the attachment-oriented strategies of EDD9 with the culturally grounded emotional interpretation provided by Navarasa. Operationalised through card-based emotional mapping and reflective evaluation, the framework was intended to support emotional decision-making within studio practice [7].

3 METHODOLOGIES: REFLECTIVE PRACTICE APPROACH

This study adopts a reflective practice methodology examining learning generated during a master's thesis [5]. This research presents a reflective case analysis focused on pedagogical learning rather than experimental validation.

3.1 Research approach

Using Schön's reflective practitioner model [5], iterative cycles of action and reflection informed design development and framework formation. CEEDD9 emerged iteratively through the synthesis of recurring emotional patterns identified during Navarasa mapping activities and the attachment-oriented strategies of EDD9, supporting clearer articulation of emotional concepts within design decisions.

3.2 Data sources and learning evidence

Data sources included exploratory surveys (50+ responses), Navarasa mapping exercises involving 30 participants who each evaluated five personally meaningful products, observational discussions across 27 households, iterative sketching and prototyping, faculty critiques, and reflective documentation.

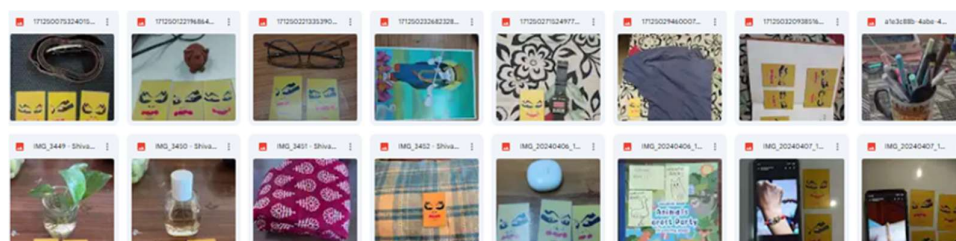


Figure 1. Selected examples from the Navarasa mapping activity, where participants associated emotionally meaningful household products with culturally grounded emotional categories during early framework development

3.3 Analytical process

Reflective thematic analysis was used to identify patterns across the Navarasa mapping activities, household discussions, reflective journals, and iterative design evaluations. Emotional associations repeatedly identified across participants and products were clustered according to Navarasa categories. Five positive emotional states Shringara (love), Hasya (joy), Karuna (compassion), Adbhuta (wonder), and Shanta (peace) emerged most consistently in relation to long-term product attachment and domestic rituals. These recurring emotional patterns informed the development of the CEEDD9 framework and later guided reflective evaluation during design iterations. Faculty reviews provided external indicators of learning progression, while the overall analysis sought an interpretive understanding of design development.

3.4 Ethical considerations and limitations

As a single-student study, findings are context-specific. CEEDD9 is presented as an exploratory pedagogical artefact requiring broader classroom testing.

4 CEEDD9 AS A LEARNING FRAMEWORK

4.1 From emotional theory to design learning

Early stages of the thesis revealed difficulty translating emotional intentions into consistent design decisions. Although EDD9 provides strategies for attachment [2], the application required interpretation, revealing the need for structured support. CEEDD9 was therefore developed not simply as a theoretical model, but as a pedagogical framework operationalised through emotional mapping cards, reflective evaluation, and culturally guided design reasoning.

4.2 Integrating EDD9 and Navarasa

EDD9 outlines strategies supporting emotional durability through narrative, identity, and material engagement [2]. Navarasa provides culturally grounded emotional categories, including Shringara (love), Hasya (joy), Karuna (compassion), Adbhuta (wonder), and Shanta (peace) [8].

Combining these systems allowed emotional durability strategies to be interpreted through culturally grounded categories. Navarasa functioned as an interpretive layer guiding emotional intent. The integration was developed to address a gap between abstract emotional intention and actionable design reasoning within studio practice. While EDD9 provided strategies for sustaining long-term product attachment through interaction, narrative, and material engagement, Navarasa contributed culturally situated emotional categories that enabled these strategies to be interpreted within Indian domestic contexts. The resulting framework allowed emotional intentions to be externalised, discussed, and evaluated more systematically during the design process.

Table 1. Example mapping between Navarasa and EDD9 strategies

Navarasa Emotion	EDD9 Strategy	Design Interpretation
Shringara (Love)	Attachment / Identity	Warm materials, tactile surfaces, intimate scale
Hasya (Joy)	Pleasure / Interaction	Playful engagement and intuitive controls
Karuna (Compassion)	Narrative	References to memory and shared practices
Adbhuta (Wonder)	Imagination	Visibility of process and experiential curiosity
Shanta (Peace)	Materiality / Sensory	Calm interaction, reduced noise, earthy palette

This mapping externalised emotional intentions by linking abstract emotional goals with tangible material, interactional, and experiential design decisions.

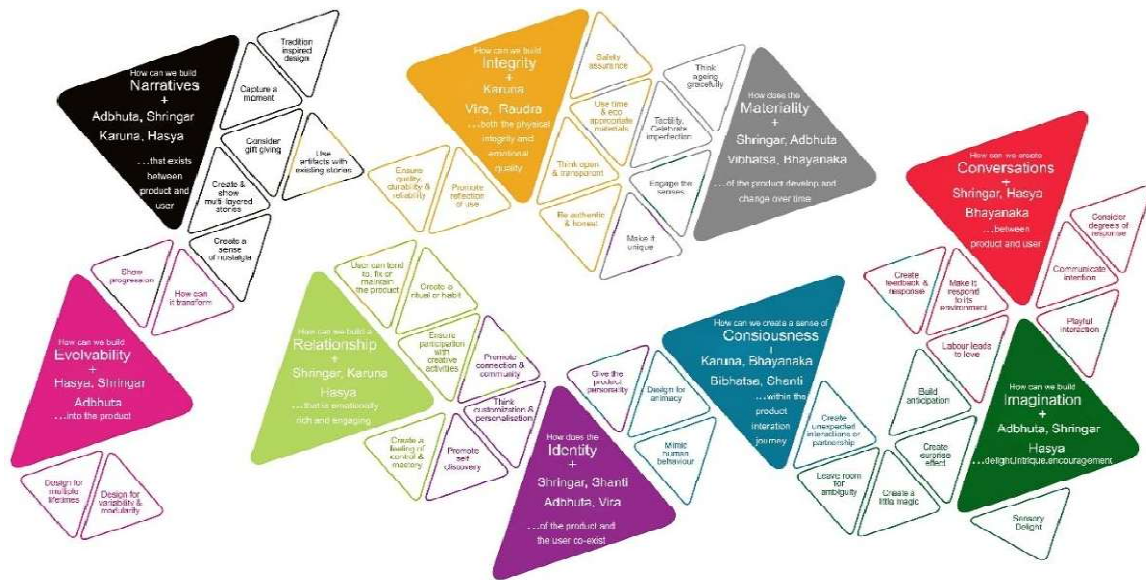


Figure 2. CEEDD9 framework integrating Navarasa emotional categories with EDD9 attachment strategies to support reflective and emotionally durable design learning

4.3 CEEDD9 as a cognitive scaffold

Rather than functioning as a rigid prescriptive method, CEEDD9 was utilised as a cognitive scaffold supporting reflective learning, emotional articulation, and iterative decision-making throughout the thesis process. The framework was designed using card-based emotional mapping to facilitate the evaluation of design iterations and decision-making through:

- **Clarification of intent:** Early design direction was informed by emotional goals.
- **Decision justification:** Choices of materials and interactions were made using emotional reasoning.
- **Reflective evaluation:** The emotional coherence of each design iteration was determined during critique sessions.

5 LEARNING THROUGH DESIGN: THE SPARSH CASE

5.1 Initial learning challenges

Emotional durability was the primary goal from the beginning, but user research and emotional insights did not always inform design decision-making. Early ideation relied heavily on personal intuition, and maintaining emotional intent during iterative development remained challenging.



Figure 3. Learning progression showing how CEEDD9 supported transition from intuitive design decisions to structured reflective reasoning during the thesis project

5.2 Learning transformation through CEEDD9

As a result of introducing the CEEDD9 framework, the design decision-making process transformed, connecting emotional intentions with identifiable criteria for purpose-based evaluation. This highlighted three significant changes in ways of learning about product development:

- Justifying material and form choices based on emotional intent; linking stone and wood to Shanta and Karuna reinforced the rationale for critique.
- The process of iteration began to focus more on tactility, sound, and the pace of interaction to redefine how we measure efficiency through experiential engagement [1].
- Collectively evaluating design elements based on emotional coherence encouraged systemic thinking versus feature-based design.

These changes demonstrate reflective learning through structured emotional mapping.

5.3 Faculty critique as educational feedback

Studio critiques provided a means of determining learning progression. Early critiques focused on alignment between research data and the design outcome, whereas later critiques focused on rationales related to design intent and experience. Faculty feedback indicated improved coherence between concept, materiality, and interaction. At the same time, tension between emotional storytelling and engineering feasibility became a significant learning outcome.

5.4 The artefact as learning outcome

The final product, Sparsh, serves as a reflective artefact that embodies the insights gained through this framework. It illustrates how emotional structure can shape studio-based product design learning.



Figure 4. The Sparsh hybrid grinder prototype developed through the CEEDD9 framework, reflecting culturally grounded emotional durability through materiality, tactility, and ritual-inspired interaction

6 REFLECTIVE ANALYSES OF LEARNING

6.1 Learning enhanced

Structured emotional reasoning.

The shift from relying solely on intuition to intentional reasoning through CEEDD9 allowed emotional intent to drive form, material, and interaction choices while providing clarity during critique.

Integration of cultural context into design thinking.

Cultural insights derived from Navarasa shifted from symbolic references to active drivers in the project designs. Empathy expanded beyond individual user experiences to become more culturally situated through Navarasa mapping.

Reflective learning through iteration.

Repeated use of the framework created opportunities for reflection-in-action [5], allowing assessment of emotional coherence during development rather than after completion, improving critical evaluation skills.

6.2 Learning challenged

Translating abstract emotions into tangible form.

The Navarasa framework offered structured emotional categories; translating these into project deliverables required experimentation and negotiation between ideas and physical limitations.

Balancing symbolism and usability.

Faculty critiques revealed tensions between emotional expression and physical practicality, indicating the need to negotiate symbolic intent with usability and manufacturability.

Maintaining analytical distance during reflective work.

In relation to the project and framework, the evolution of the framework facilitated the separation of reflection and justification through purposeful engagement between critique and documentation.

6.3 Learning limited

Single-designer application.

The framework was implemented and evaluated in a singular thesis project, limiting insight into how other learners might interpret it and indicating that broader classroom testing would be beneficial.

Dependence on facilitation and prior cultural familiarity.

Implementing Navarasa concepts required pedagogical guidance.

Scope constrained by academic timeframe.

Due to semester constraints, long-term validation was not possible, limiting findings to design reasoning rather than long-term outcomes.

6.4 Reflection as a learning outcome

Using CEEDD9 to mediate between conceptual knowledge and design action enabled reflective learning within studio practice.

7 IMPLICATIONS FOR ENGINEERING AND PRODUCT DESIGN EDUCATION

Reflections presented in this study offer implications for incorporating emotional durability and cultural frameworks into engineering design and product design education. While CEEDD9 was developed as part of an individual thesis, the learning outcomes show it has much broader pedagogical potential. Structured emotional frameworks can connect conceptual discussions of empathy with practical design decision-making. Furthermore, culturally responsive approaches to human-centred design education can use this framework to open the design process by employing a culturally situated emotional context instead of relying solely on global definitions of emotions. Finally, because of the structured mapping of emotions, the intent of design can be communicated more effectively during critique so that the discussion can focus more on articulated reasoning rather than subjective preferences.

In order to implement these materials, facilitated guidance is required, as culturally based frameworks rely on contextual understanding. Future research may explore the applications of these materials in classrooms with diverse learners and disciplines to determine the broader educational impact.

8 CONCLUSIONS

By combining the Emotional Durability Design Nine framework with the Navarasa emotional system, this study developed CEEDD9 as a learning scaffold supporting the transition from emotional concepts to design decisions. Culturally grounded emotional frameworks can support reflective design development by strengthening reasoning clarity, deepening engagement with cultural context, and maintaining emotional intent throughout the design process. The findings demonstrate how culturally grounded emotional frameworks can support emotionally durable and culturally sensitive design education.

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