

# Towards a theory of innovation in handloom weaving in India

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## SUMMARY

What is the relevance of craft today? This is the question that this dissertation seeks to answer through a detailed study of the case of handloom weavers in South India. More than 4.3 million craftspeople make a livelihood out of handloom weaving in India; about half of these live below the poverty line. It is generally accepted that the decreasing number of weavers in succeeding government censuses is evidence of unsustainability of handloom livelihoods, raising questions about its future. Why do weavers leave weaving? How can their hand-made products stand up to competition from mechanized production? How can an old technology of production be considered relevant in a modern industrialized world? Tradition is thought to be unchanging, and modernity constantly innovating – with the seemingly inevitable implication that tradition gives way to modernity. Can traditional handloom craft ever be relevant when it does not innovate?

Handloom weavers all over India have evidenced that under enabling circumstances they are sustainable and resilient through bad times and they can persist into good times. Yet, despite the unquestionable success of contemporary efforts in marketing handloom and craft, the association of unsustainability with handloom and craft livelihoods endures. This is because the narratives of technological progress, modernization and development characterize handloom as unproductive, pre-modern, and unsustainable

manual labour and continue to influence public discourses around traditional crafts and hold power in Indian policy making.

Yet the paradox that a labor-intensive traditional craft like handloom has survived after two centuries of mechanization and government-induced industrialization in the market-economy of India has to be explained. In order to do so, I ask in this dissertation: First, how can we ameliorate unsustainability in the livelihoods of vulnerable craftspeople? Second, how can designers intervene to bring about social change in the lives of craftspeople? Third, how does handloom weaving technology survive, even after 200 hundred years of state-supported industrialization? Finally, how do handloom weavers sustain themselves in the changing market places?

To answer these questions, this dissertation provides an analysis of handloom weaving as sustainable and innovative socio-technology, using the concepts that scholarship in Science Technology and Society Studies [STS] has developed to unpack and reanalyze science and technology. I analyze the hand-operated loom as part of a socio-technical ensemble: handloom is a collection of heterogeneous elements of technologies [spinning, looms, warping drums, computers], practices [designing, sizing, computer programming], formal institutions [co-operatives, Civil Society Organizations (CSOs) and Non-Governmental Organizations (NGOs), government institutions], informal institutions

[household, extended family, village community, caste] and social groups [weavers, dyers, designers, customers] that together constitute a socio-technical ensemble. Sustainability I argue is the outcome of a responsibly innovating technological culture. This understanding displaces the idea that unsustainability is inherent to the vulnerable weaver or the loom. This is the main argument, towards which each succeeding chapter lays a building block.

The structure of the book is summarized in the following table, which also shows the conceptual shift in each of these chapters: from Unsustainability

to Vulnerability, from Intervention to Mediation, from Technology transfer to Interactional expertise and from Innovation to Creativity. The aim of these conceptual shifts is to embed the project of the social analysis of handloom technology into the particular contexts of traditional Indian craftspeople and their vocabulary for technological change, while using STS scholarship. Shifting from a technological concept to a socio-technical concept foregrounds the social in the analysis of technology and the idea of handloom livelihoods as a socio-cultural idea, and not just an economic one.

No	Chapter Title	Technological concept	Proposed socio-technical concept
1	Introduction		
2	Review of literature		
3	Livelihood trajectories in Handloom weaving	Unsustainability	Vulnerability
4	Designing for social change	Intervention	Mediation
5	Handloom as adaptive socio-technology	Technology transfer	Interactional expertise
6	Cultures of Innovation in Handloom	Innovation	Creativity
7	Conclusion	Practicing sustainability in the handloom STE Theory of Innovation for Handloom weaving An ethos of sustainable development	

The literature review in chapter 2 is structured around narratives of what Breman calls “aborted transformations” (Breman 2009)—transformations to industrialization, to development, and to modernity. Scholars have taken three different approaches to the consequences of these aborted transformations. Counternarratives to the master narrative of handloom’s inevitable demise as a mode of production, narratives of loss—descriptions of the losses that handloom communities bear as a result of these master narrative frames of viewing and (re)presenting handloom—and interrogations of policy understandings that ride on these deterministic

frames. In the next section I demonstrate the considerable overlap between practices of theory building in STS and intervening in an NGO through explicating the heuristics of reflexivity, symmetry, and interaction that operate in both sites. STS scholarship on knowledge-building practices that does not operate on the assumption that labor and intelligence are mutually exclusive is reviewed briefly. In a further section there is a brief introduction to social construction of technology [SCOT] concepts that later chapters use.

Chapter 3 addresses the question: Under what conditions do livelihoods of handloom

weavers become unsustainable, and when can they become sustainable? The notion of vulnerability is used for understanding both sustainability and unsustainability in handloom livelihoods. Employing this lens and not starting with the assumption of unsustainability, vulnerability is treated as a condition of openness that has the potential to lead to positive change and sustainability. The generative aspect of argumentation and dissent that characterizes debates around handloom vulnerability and leads to collective action is discussed. This helps to relate discourse analysis and collective action in order to explain how coherence is built in an argumentative culture: asserting argumentation can be generative rather than divisive.

Chapter 4 discusses designer interventions in supporting craft livelihoods. This chapter investigates how design can be the key to growth and a paradigm for development, using the market for craft and handloom. Design I define as a combinatory and entrepreneurial activity that spans aesthetic, economic, social, and cultural functions with the goal of increasing the value of the product. I propose that designers intending to mitigate vulnerability in livelihoods of craftspeople have to look beyond the economic into social and cultural outcomes of design interventions. The purpose of this chapter is to broaden understanding of design interventions in craft livelihoods through empirical examination of designer narratives as *intervention* in an economic frame, as *interaction* in a social frame, and as *mediation* in a cultural frame. Through the concept of *Kala* — artistry that is a combination of technical, aesthetic, and creative aspects of production that are imagined as the artisan’s forte — I discuss how artisans themselves can take up the function of design in craft production. This chapter extends the STS concept of “cultures of technology” to “cultures of design” in order to understand the complex relationships between skills, tools, materials, markets, identities, aesthetics, and rituals in contemporary craft and handloom networks.

The question that Chapter 5 seeks to address is: How does handloom weaving technology succeed in persisting in the changing world, even as the loom itself looks unchanging? I relate how reactive dyeing, a technology from the mechanized sector, makes its way into the handloom ensemble as handloom weaver cooperatives adopt and adapt the technology for their contexts. In doing so, reactive dyeing itself is adapted as skill rather than as mechanized technology. But in the handloom ensemble, it is not only new and futuristic technologies that are added; in a counter-intuitive movement, we see that the ensemble can go back in time and add older forgotten technologies, such as natural dyeing, by recalling and reintroducing them into contemporary practices. This process creates multiple technological variants in the handloom ensemble, which are made operational through compatibility standards that allow them to couple with the other technologies in the ensemble. The only criterion is that the new or old technology has to work in the service of maintaining value for the loom and the deep craft attached to the loom.

I use the concepts of technological frame, interactional expertise, and memory practices to elucidate adaptive change, as well as its stabilization, in the handloom STE. This helps to understand how cultures of technology, which have persisted while adapting to meet market demands as well as societal aspirations and needs, acquire cultural meaning for every new generation of producers and users. This acquisition of cultural meaning adds to our understanding of change and stability, balancing productivity and sustainability.

In Chapter 6, I seek to address two related issues. The first is to deepen the theoretical understanding of innovation by exploring it in supposedly non-innovating traditional contexts. The second is to explore how this improved understanding of innovation in handloom can renovate the socio-cultural and technological imagination around the relevance of craft knowledge. I show how innovations are shaped by interactions between individuals across different

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user groups and communities and I identify product, market, and process innovations in handloom. These innovations include the use of mobile phones to explore new markets and the use of computers to speed up calculative functions. These innovations allow weavers to engage in slower and more skilled work while keeping the product cost-effective.

In order to build a vocabulary of innovation in tradition, I borrow the language of the practitioners of South Indian classical music, a traditional genre known for its jazz-like-improvisation and creativity that is close to the vocabulary of innovating handloom weavers.

The concluding Chapter 7 has three sections: in the first section, I summarize sustainability in handloom weavers' livelihoods. In the second section, I attempt to explicate a vocabulary for innovation in handloom practice,

moving towards a theory of innovation. In a final brief section, I point towards an ethos for sustainable development that we can learn from weavers, as living within one's means, combining knowledge, equity and beauty. Based on weavers' innovative sociotechnical practices, I highlight and foreground craft as an instance of embodied knowledge, which is indispensable to notions of democratic science, robust knowledge-building, and innovation. I conclude by arguing that craft embodies various forms of knowledge (material, historical, and collective) of often vulnerable communities, providing them forms of resilience against destabilizing paradigms (colonialist expansion, industrialization, and oppressive caste identities) and needs to be understood holistically (including the relation to ethical, spiritual and aesthetic values).