

Understanding Colours: A Learning Module for Sustainable Dyeing Practices

Namrata Bhutoria

Impart + Nalli Fellowship 2024-25 (Cycle 1)

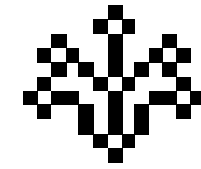


Cover Image: Natural dyeing of fabric in a flame-of-the-forest dye bath. Photograph: Ruchit Jadya for ColorAshram

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Introduction



Shibori-dyed textile sample.
Photograph: ColorAshram



Project Snapshot

Location and Organisation

ColorAshram Foundation, Mysuru, India

Focus

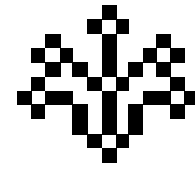
Textile dyeing, sustainability, organic and natural dyes

Methodology

Semi-structured interviews, informal conversations, secondary research, thematic analysis using UNESCO's Education for Sustainable Development (ESD) competencies

Outcomes

A five-part educational course exploring the past, present, and future of colour in textiles through theory and practice



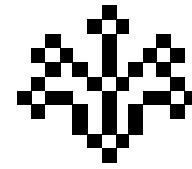
Project Overview

Namrata Bhutoria was awarded the Impart + Nalli Fellowship in 2024. The Fellowship is offered through a collaboration between Nalli Silks — a heritage textile brand established in 1928 — and Impart, an online platform dedicated to developing accessible resources on South Asian art and cultural histories. Every year, the Fellowship supports two research projects on underexplored textile histories, practices, and traditions in South Asia. For the inaugural cycle in 2024–25, Fellows were selected through a rigorous assessment process that included reviewing more than 200 project proposals, followed by interviews with shortlisted applicants. The Jury and Advisory Committee comprised Annapurna Garimella, Manju Sara Rajan, Mayank Mansingh Kaul and Lavanya Nalli.

This project, a short course on sustainable dyeing practices, was conceived in response to a persistent gap in Indian textile and fashion education: a lack of learning resources that approach and connect the history, chemistry, environmental impact, and practical applications of natural dyeing.

A batik textile sample dyed with madder being washed. Photograph: ColorAshram



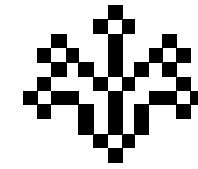


Testing the safety of coal-tar colours; 1960s. Photograph: U.S. Food and Drug Administration and Wikimedia Commons



The outcome of the year-long Fellowship is an open-access, free educational module comprising self-guided video lessons, companion articles, and a curated reference library. Together, these materials introduce learners to the historical evolution of using colour in textiles, the environmental and social consequences of synthetic dyes, and the possibilities of natural dyeing today. Designed for students, educators, practitioners, and conscious consumers, the course aims to make sustainable dyeing more accessible by combining rigorous practice-based research with visual storytelling and practical demonstration.

The project unfolded in four interconnected stages: research and discovery, script development, production, and the creation of accompanying educational resources. Drawing on extensive primary and secondary research — including nine expert interviews and a corpus of 28 key sources — the course took the form of a five-part educational series. Structured as a progressive learning journey, it guides learners from building foundational knowledge to experimenting with sustainable dyeing practices.

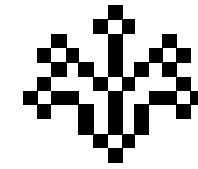


About the Fellow

Namrata Bhutoria is the co-founder of ColorAshram Foundation, a natural-dye studio and nascent academy based in Mysuru, India. Her work focuses on innovating with natural dyes and addressing the environmental challenges posed by synthetic dye-based water pollution. Bhutoria has trained a wide range of learners in natural-dye techniques and sustainable practices. She has also mentored the teams behind several emerging sustainable fashion brands across India.

Research Background: Contemporary Textile & Fashion Education

Artisans dyeing textiles by hand;
Amritsar, India; 2017. Photograph: CNN

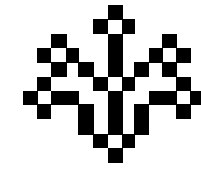


Ideas of sustainability have become central to conversations surrounding textiles and fashion, yet their presence in teaching environments remains largely abstract, with students receiving limited exposure to the practical realities of dyeing and production processes. At the same time, the landscape of pedagogy in the field is changing as classroom learning materials increasingly include digital resources; educators in turn create avenues to meet learners where they are — with audio-visual lessons — and communicate complex ideas through accessible media formats.

This project was conceived to address these intersecting challenges. Rather than presenting themes of sustainability solely through theory, it sought to combine historical context, scientific understanding, environmental awareness, and practical demonstration within a coherent learning journey. The resulting resources were designed not only for independent learners but also as teaching materials that educators could readily integrate into classroom settings.

Throughout the Fellowship, research remained closely connected to the academic imperative. Conversations with educators and practitioners helped identify the knowledge gaps, teaching challenges, and learning formats most relevant to students, ensuring that the course responded directly to the needs of contemporary textile education.

Research Questions



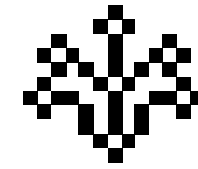
Yarn dyed using natural dyes in the TrueTone machine. Photograph: ColorAshram



The project was structured around a few thematic questions, each of which became a basis for the five videos that constitute the series:

- What is the historical relationship between colour, dyes, and society? What impact and cultural significance have dyes had across time?
- What is natural dyeing? What do we know about the history, chemistry, terminologies, and principles underlying the concept?
- What are the environmental and human impacts of using conventional synthetic dyes? Why is natural dyeing a solution worth pursuing?
- What does sustainability mean within the context of contemporary textile production and the fashion industry?
- What is the practicality and scope of natural-colour application in India at present?

Research Methodology

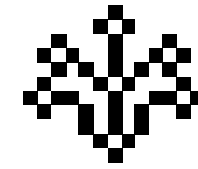


Dyed and printed textile yardages.
Photograph: ColorAshram



- Primary research was undertaken through nine recorded semi-structured interviews with educators, sustainability specialists, and natural-dye practitioners from across India. This was complemented by informal conversations with 18 professionals and experts. While the original proposal planned to survey students directly, the research shifted to interviewing educators and practitioners, enabling more practical insights from classroom environments.
- The interview framework was developed in collaboration with journalist Sweta Daga, whose work focuses on gender, livelihoods, and environmental issues.
- Interview data was analysed against UNESCO's eight cross-cutting Education for Sustainable Development (ESD) competencies, to systematically interpret the findings and identify emerging themes.
- Secondary research focused on academic articles and industry journals and reports, including publications by the Ellen MacArthur Foundation, Textile Exchange, *Fashion on Climate* by McKinsey & Company, *To Dye For* by Alden Wicker, and peer-reviewed scholarship on sustainable dyeing, environmental science, and textile pedagogy.

Research Journey



Phase 1

A boy salvages pieces of cloth from the liquid waste of the dyeing industries near the Turag River; Dhaka, Bangladesh Photograph: Probal Rashid, LightRocket

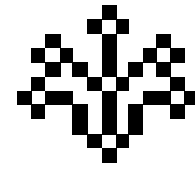


The rivers around Tirupur are often red or purple with runoff from nearby factories, such as those in the Netaji Apparel Park; Tamil Nadu, India. Photograph: HK Rajasekar, India Today



Establishing Research Framework and Primary Research

- Undertaking a literature review on sustainable dyeing, textile education, and the environmental impact of conventional dyes
- Informal conversations with professionals and experts to gather their experiences with natural dyeing and sustainable fashion
- Designing a 60-minute semi-structured interview framework
- Conducting nine interviews with fashion educators, sustainability specialists, and natural-dyeing practitioners
- Analysing interview findings and identifying key themes of curriculum gaps, preferred learning formats, and uncertainty around viable career pathways within sustainable textile practices



Phase 2

Natural dyeing of different fabric qualities in shades produced from a flame-of-the-forest dye bath. Photograph: ColorAshram

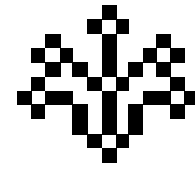


Tie-dyed fabrics. Photograph: ColorAshram



Script Development

- Developing five interconnected scripts that were designed as a composite educational journey and integrated themes of consumer agency, responsibility, and sustainable career pathways for practitioners
- Incorporating expert contributions from industrial natural-dye pioneer Arun Baid, and textile professional and author Monoleena Banerjee, to strengthen the scientific and historical content, and industry insights, of the scripts
- Production planning, location scouting and crew confirmation for video shoots



Phase 3

Hand-painting with TrueToneink natural dye pastes on organic cotton mordanted with iron salt. Photograph: Mayank Bhutoria for ColorAshram

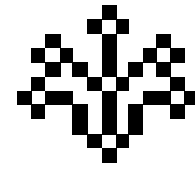


Leaf-impression print with TrueToneink natural dye pastes on organic cotton mordanted with iron salt. Photograph: Mayank Bhutoria for ColorAshram



Video Production

- Filming the life cycle of colours, dyes and textiles at the Biome-ColorAshram retail space and the Truetone Ink production facility in Mysuru — led by filmmaker Souharda Sivasou, his team, and Mayank Bhutoria
- Recording expert interviews and demonstrations featuring Arun Baid and eco-print artist-educator Shraddha Barde, in addition to a closing dance sequence
- Integrating original footage with licensed archival, historical, and scientific visual material
- Still-photography and royalty-free music selection for all five educational videos



Phase 4

Different dyed fabric samples being air-dried. Photograph: ColorAshram



Wall mural made with natural colours. Photograph: ColorAshram

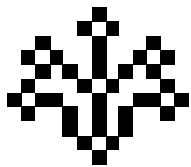


Production of Companion Resources and Video Post-Production

- Producing five long-form articles to accompany and expand upon the research presented in each film
- Compiling a reference library of books, films, academic literature, and industry publications consulted throughout the Fellowship
- Preparing written resources that complement the videos and provide educators with assignable teaching material
- Post-production to ensure cohesion and consistency in the five-film series titled Understanding Colours – including editing, colour grading, sound design, subtitling, and end-credit attribution
- Producing a unified learning resource designed to support classroom teaching, self-directed learning, and wider public engagement with sustainable textiles and natural dyes

Contributors

Yardage dyed using natural dyes in the TrueTone machine.
Photograph: ColorAshram



Project Lead

Namrata Bhutoria

Experts and Interviewees

Santosh Kocherlakota
Assistant Professor at the School of Design Innovation, Mahindra University, Hyderabad

Aboli Naik
Assistant Professor, National Institute of Fashion Technology (NIFT), Mumbai

Tasneem Lohani
Visiting Professor of Art History, National Institute of Fashion Technology (NIFT), Bengaluru

Shraddha Barde
Eco-Print Artist; Visiting Faculty, School of Fashion Technology (SOFT), Pune

Varun Shashni
Faculty at National Institute of Design (NID), Gandhinagar

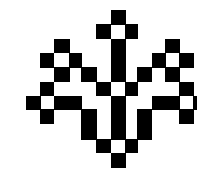
Dr Toolika Gupta
Director, Indian Institute of Crafts and Design (IICD), Jaipur

Carmen Artigas
Climate-Positive Fashion Consultant

Monoleena Banerjee
Natural-Dye Educator

Annalise Dunn
Designer

Perna Nataraj
Designer



Herbal-dyed samples being air-dried. Photograph: ColorAshram



Interviewers

Namrata Bhutoria, Sweta Daga

Production and Project Support

Souharda Sivasou & Team
Filming and editing

Mayank Bhutoria
Project guidance

Sweta Daga
Initial script development

Shailaja Karthick
Production support

Arya Mallakara
Set design

Nainy Tailor
Production support

Truetone Ink team
Production space

Sulendar Mahato
Production support

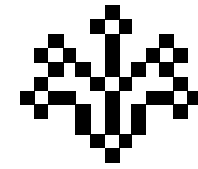
Actors & On-Screen Contributors

Aarshiyaa Singh, Arya Mallakara, Darshana Rows, Arun Baid, Namrata Bhutoria

Audio

Souharda Sivasou
Male Voiceover

Challenges & Adaptations

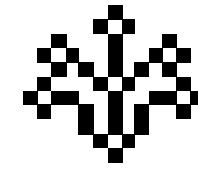


Tie-dyed samples drying.
Photograph: ColorAshram



Like many research-led projects undertaken within a fixed grant period, the Fellowship required a number of practical adaptations while maintaining its original objectives.

The foremost challenge arose during the research phase. The original proposal envisaged direct engagement with students through surveys; however, coordinating participation within the project timeline proved difficult. The methodology was therefore adapted to focus on interviews with educators and practitioners, who were able to provide broader perspectives on curriculum gaps, learning needs, and industry expectations. This approach also allowed participating faculty to share the project's early concepts with their own students, strengthening the long-term educational relevance of the resource.



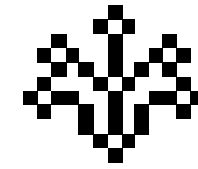
Experimenting with different techniques using natural dyes on fabric. Photograph: ColorAshram



Additionally, the research revealed an overlap between the planned themes of consumer education and career pathways in sustainable textile-production. Rather than developing these as separate modules, the scripts were revised to integrate ideas of agency and responsibility, and routes to professional opportunities, throughout the five-part series. This preserved the original structure while creating a more comprehensive learning journey.

Another challenge was in representing the historical, scientific, and industrial dimensions of colour within a visual medium. Achieving this required careful integration of original footage with licensed material, as well as public-domain imagery and references to ensure that complex concepts remained both accurate and accessible.

Research Outcomes



The final result was a free and thoughtfully curated research-based educational resource titled *Understanding Colours*, which included:

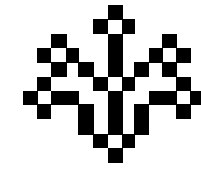
1. A five-part video series comprising the following videos:
 - **The Dark Side of Colour:** The history of colour and the development of the dye industry
 - **The True Cost of Synthetic Colour:** Environmental and human impacts of synthetic dyes
 - **Peeling the Onion:** Sustainability, reform, and the complexity of systemic change
 - **Seeing Is Believing:** Industrial-scale natural dyeing and contemporary practice
 - **What Can Be Dyed in the Kitchen:** A practical introduction to natural-dyeing techniques
2. Five companion long-form articles that expand the learning content of each video
3. A curated reference library comprising books, films, and 28 academic and industry sources
4. Nine expert interviews forming the project's primary research archive

Together, these resources provide learners with both conceptual understanding and practical knowledge, while offering educators materials that can be readily utilised in teaching environments.

Bottled natural dye pastes.
Photograph: ColorAshram



Impact and Future Outputs



Top: Treating fabric with harda. Photograph: ColorAshram **Bottom:** Participants in an eco-printing workshop holding up their pieces. Photograph: ColorAshram



Beyond the **production of educational materials**, the project contributes to **wider conversations around sustainability** in textile education by demonstrating that environmental responsibility can be taught through a cross-disciplinary approach that brings together insights from history, science, craft, and industry. By presenting sustainability as a practical and creative process rather than an abstract concept, the research outcomes seek to encourage more informed and conscious approaches to textile production among the next generation of designers and makers.

In-person event hosted by Impart: Through *Impressions of the Forest: Plants in Prints and Pigments* — an in-person event based on the Fellowship and its research outcomes — Namrata introduced participants to eco-printing using locally foraged botanicals and natural pigments on fabric. Reflecting on themes explored during her year-long project, she shared insights into natural dyeing and eco-printing, and their potential to support more sustainable approaches to contemporary textile design.

Support



This research was conducted by Namrata Bhutoria as part of the Impart + Nalli Fellowship 2024–25.

The Impart + Nalli Fellowships support research into underrepresented textile-related histories, practices, and traditions across South Asia.

The Fellowship is a collaboration between Nalli Silks — a heritage textile brand established in 1928 — and Impart, an online platform dedicated to developing accessible resources on South Asia’s art histories. Since its inception, the programme has supported two research projects annually.

Acknowledgements

Namrata Bhutoria extends her gratitude to everyone who contributed their knowledge, expertise, and time throughout the Fellowship. She extends special appreciation to journalist Sweta Daga, designer Prerna Nataraj, filmmaker Souharda Sivasou, eco-print artist Shraddha Barde, textile professional Monoleena Banerjee, industrial natural-dye expert Arun Baid, the actors, interns, and the logistics team, whose collective efforts made the production of the series possible.

She also thanks the nine educators and practitioners from across India whose interviews formed the foundation of the project’s research. Their insights shaped the educational direction of the series and ensured that it responded meaningfully to the needs of contemporary textile education.

Learn More

To learn more about the research project *Understanding Colours*, please contact Namrata Bhutoria at colorashramfoundation@gmail.com

For any further information or inquiries, please write to us at specialprojects@imp-art.org



For information about the Impart + Nalli Fellowship and future opportunities, scan the QR code.