

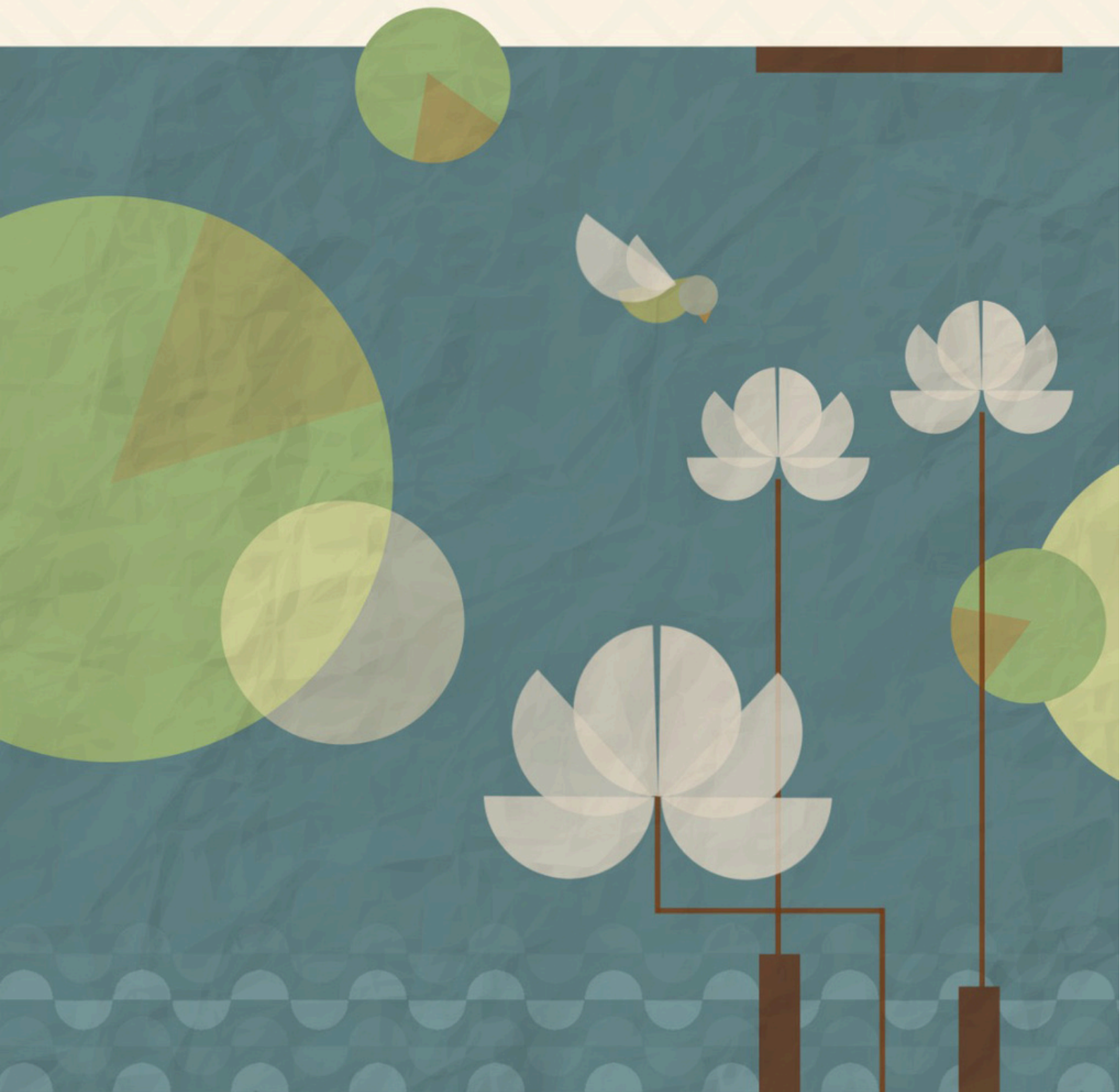


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Department of Silpa-Sadana
Visva- Bharati

Presently, Silpa-Sadana is a Department under Palli Samgathana Vibhaga (Institute of Rural Reconstruction), located at Sriniketan Campus of Visva-Bharati, a Central University. Silpa-Sadana was established as an integral part of Tagore's Sriniketan experiment on Rural Re-construction. It is a pioneering institute in India in developing and revitalizing cottage industries and craft, since its inception. Rathindranath Tagore was the pioneer in shaping this department to fulfil the vision and mission of his father. In his opinion, "... This institution has immense possibilities of being developed into a full-fledged Polytechnic in cottage industries and utilized for the purpose of producing skilled craftsmen, foremen, craft teachers and designers, an army of whom is an essential pre-requisite for the development of industries in India". However, Silpa-Sadana is probably the only institute in India where academic activity was not initiated from the very inception, rather it initiated the production of craft-based items for the socio-economic empowerment of the rural mass, academic activities were started later on to augment the production activities, instead. Silpa-Sadana has always been ready to adopt need based academic curriculum as its prime activity. It never ignored the production activity or the extension activity as a supplementary to teaching and research. The present Silpa-Sadana is devoted to providing various technical training and production activities in various craft-based trades for the benefit of the rural sector, especially, apart from offering various academic programs e.g., Bachelor of Design (B. Des.), Masters of Design (M. Des.), and Ph.D. under UGC structure.



About *Journal of Craft & Design Research*

Aims and Scope

The aim of the *Journal of Craft & Design Research* is to advocate and promote research on current and emerging craft, including in-depth studies on materials and methods, processes, concepts, aesthetics and style. This will cover any discipline area of the applied arts and crafts, including craft education.

Special emphasis is given on studio practice, and on the transformations of indigenous forms of craft activity throughout the world. Research articles on indigenous and innovative product design in the domain of ceramic & glass, furniture & interior, textile & apparel, batik, artistic leather craft, handmade paper making, and other traditional/indigenous crafts are highly appreciated.

The aim of this journal is to facilitate and promote dissemination of research ideas and applications on craft and product design at nationally/internationally recognized academic level.

The journal encourages contributions based on merit and originality, and it also encourages peerreviewed research and review articles from worldwide research contributors dealing with the specified domain.

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- Traditional crafts and their practices
- Current and emerging craft research, including research into materials, processes, methods, concepts, aesthetic and style
- Applied arts and crafts, including craft education
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- Impact of socio-cultural aspects in product design
- Eco-friendly product design
- Sustainable and energy efficient product design
- Design learning strategies and design pedagogy.
- Application of ergonomics and computer tools in product design

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E-mail: editor.jcdr.silpasadana@visva-bharati.ac.in OR editor.jcdr.silpasadana@gmail.com

Associate Editors

Prof. (Dr.) Arabinda Mondal, Professor, Silpa-Sadana, Visva-Bharati, West Bengal, India
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Dr. Tanima Bhattacharya, Assistant Professor, Silpa-Sadana, Visva-Bharati, West Bengal, India
Email: tani.bhattacharya1@gmail.com

Shantanu Kumar Jena, Associate Professor, Silpa-Sadana, Visva-Bharati, West Bengal, India
Email: skjena7@gmail.com

Sumitabha Pal, Associate Professor, Silpa-Sadana, Visva-Bharati, West Bengal, India
Email: sumitabha.pal@visva-bharati.ac.in or sumitabhpalcg@gmail.com

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Dr. Sanjoy Debnath, Principal Scientist & Head, ICAR-National Institute of Natural Fibre Engineering & Technology, Kolkata, WB, India, Email: sanjoy.debnath@icar.gov.in or sanjoydebnath@yahoo.com

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Dr. Sukanya Kundu, Assistant Professor, Silpa-Sadana, Visva-Bharati, West Bengal, India, Email: sukanyakundu26@gmail.com

Editorial Advisory Board Members:

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Publisher:

Silpa-Sadana, Visva-Bharati, Sriniketan, Birbhum, West Bengal – 731236, India.

E-mail: editor.jcdr.silpasadana@visva-bharati.ac.in OR editor.jcdr.silpasadana@gmail.com



The entire publishing team of the *Journal of Craft & Design Research* is fully committed to ethical publication practice.

The editorial team acts in accordance with the principles laid down by the Committee on Publication Ethics (COPE) and support for maintaining consistent ethical standards throughout the scholarly publishing community.

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Review articles should not exceed 15000 words. In this case, the display items should be limited to 10 numbers including tables and figures; and references should be limited to 70-80. These articles should encompass surveys and discuss the developments in the domain related to traditional knowledge. They must dwell more on research work done during the last couple of years in the field. The authors should integrate their own work with that of others with acumen and authenticity. Mere compilation of references by a third party is strongly discouraged. Kindly contact the Journal Editor at editor.jcdr.silpasadana@visva-bharati.ac.in for further clarifications, if any.



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The *Journal of Craft & Design Research* is a **Bi-annual Double Blind Peer Reviewed** Journal being published by Silpa-Sadana, Visva-Bharati (a Central University), with a view to showcasing communications substantiating the results of original work of research / review on current and emerging craft, including in-depth studies on materials and methods, processes, concepts, aesthetics and style. This will cover any discipline area of the applied arts and crafts, including craft education.

In due course, attempts will be made to include the *Journal of Craft & Design Research* in various indexing services like Scopus (Elsevier), National Academy of Agriculture Science (NAAS), Indian Citation Index (ICI) and National Institute of Science Communication & Information Resources (NISCIAR).

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Margins : Top – 0.5inch, Bottom - 0.5 inch
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Pages **should not to be numbered** and the matter/ manuscript should be arranged in the following order:

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1.1 abcde 1.2

abcde

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January - June 2026

Journal of Craft & Design Research

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Silpa-Sadana, Visva-Bharati, Sriniketan,
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Birbhum, West Bengal - 731236, India.



EDITORIAL**Beyond Heritage: Craft, Design and the Making of New Knowledge**

The inaugural issue of the Journal of Craft, Design and Research (JCDR) established a platform for scholarly dialogue on craft, design, education and research, bringing together diverse perspectives on materials, processes, aesthetics, traditional knowledge, sustainability and contemporary practices. The second issue allows questioning that How can craft move beyond being perceived primarily as heritage and become an active source of new knowledge, critical inquiry and future possibilities?

Craft has always been integrally associated with heritage and framed a network of cultural preservation through it. Craft does carry memory, identity, skill and material culture across generations, and communities have fought hard to keep that inheritance alive. Yet, heritage, as a category, quietly assigns things to the past. Visit any working pottery cluster or weaving village and the premise falls apart within an hour...glazes change because a supplier discontinued a mineral. Looms get modified. Designs shift because a buyer in another city asked for something different, or because a young weaver saw something on the internet. Craft is negotiated daily, against materials, markets, weather and taste. So, the knowledge it holds is not simply archival; it has been evolved through practice. And, every act of making demands thorough understanding of the material, process, experimentation and adaptation. Watching an artisan judging the moisture in clay by its feel, or adjust tension on a warp without measuring anything, is the visible knowledge that no manual contains. It is embodied, largely tacit, and built over years of decisions that were never recorded. Here making itself generally become a process of thinking, questioning and discovering. Hence, craft is a compendium of knowledge that represents the complementarity amongst the Head, the Heart, and the Hand.

The relationship between craft and design is equally significant in this context. The two have interacted in complex ways since the time immemorial, and contemporary practice presents opportunities to rethink this relationship through more equitable and collaborative manners. The artisan should not be approached merely as a skilled professional implementing age-old ideas or something that conceived elsewhere. Artisan knowledge itself can inform design thinking, innovation and problem-solving. Similarly, designers and researchers can contribute new perspectives, design interventions, technologies, markets and applications while respecting the cultural identity of the craft and the community.

Sustainability, too, requires a broader understanding. Craft is called sustainable because it uses natural materials and little energy. Sometimes that is true; often it is romantic. A tradition in which practitioners cannot earn a living, or where no one under thirty intends to continue, is not sustainable in any meaningful sense, however natural its dyes are. Environmental, social, cultural and economic conditions hold together or fail together. Sustainable craft futures therefore require attention to artisan welfare, fair economic opportunities, intergenerational knowledge transmission, responsible production, cultural continuity and ecological responsibility. These concerns also challenge us to rethink craft and design education. Education should not treat craft merely as a collection of techniques to be mastered or traditions to be reproduced. It can become a space for critical inquiry, experimentation and dialogue between traditional knowledge and contemporary challenges. The queries can be encouraged, not only to learn the process but to understand the whole mechanism including why, where, for whom and how it had evolved over time and presently coping with new market trends. This holistic understanding will enable to predict the future and preserve the knowledge systems as well. Such an approach can help cultivate researchers, designers and practitioners who value both inherited knowledge and the possibilities of innovation.

The present issue of JCDR brings together scholarship that reflects this expanding field of inquiry. The diversity of themes represented in the issue demonstrates that craft research can move across material studies, design processes, traditional knowledge, ideology, education, sustainability, community practices, technological change and contemporary applications. Such diversity is not a departure from the identity of the journal; rather, it reflects the interdisciplinary nature of craft itself.



JCDR therefore seeks to encourage scholarship that asks new questions as much as it documents existing practices. Among the areas that issue continued to explore, are:

- Craft as embodied, tacit and situated knowledge;
- relationships between artisans, designers, researchers and communities;
- Emerging technologies and their implications for craft practices;
- Sustainability, circularity and responsible material cultures;
- Craft, rural development and creative economies;
- Documentation and transmission of indigenous and traditional knowledge;
- New pedagogies, ideologies in craft and design education; and
- Ethical, participatory and interdisciplinary approaches to craft research.

The larger objective is to create a space where diverse forms of knowledge can meet, where theory can engage with practice, tradition with innovation, and local experience with wider academic discourse. Such engagement can help shift the discussion from preserving craft to understanding what craft can teach us and what new possibilities can emerge from it. Beyond heritage, therefore, lies a larger and more dynamic understanding of craft: craft as knowledge, craft as inquiry, craft as innovation, and craft as a means of imagining more sustainable and inclusive futures. It is this evolving landscape of making and knowing that JCDR seeks to explore, document and critically engage with in the issues to come.

Dr. Tanima Bhattacharya
Associate Editor



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Living traditions of glass flame work: A study of artisan working process from Firozabad, Uttar Pradesh

Aritra Roy Choudhury & Arabinda Mondal

Department of Silpa Sadana, Visva-Bharati University, Bolpur-Sriniketan, West Bengal, India

**E-mail: royaritra1@gmail.com*

Abstract:

The ancient craft of glass flamework is being carried out with amazing inventions and talent in Firozabad, India. The Glass Flame Work Craft has gained popularity by supporting the talented craftspeople who dedicate their entire lives to this complex craft and as a sign of artistic excellence. Based on the literature collected, other than cultural and economic importance, it was observed less empirical research exists on labour organization in this craft. The relationship between the working process and the artisans participating in Firozabad and Purdilnagar, directly or indirectly, is a multifaceted and diversified subject of study in this craft-making process. Both areas are crucial when taking into consideration the degree of artistry and the production method. In this research, the data were collected through questionnaires and interviews, which were further analyzed using Pearson and Spearman correlation coefficients to examine. The purpose of this study was to investigate the relationship between the artisans engaged in glass flamework and the working process. Here the researchers carefully select 90 resident artisan families who produce glass crafts in Firozabad, Purdilnagar, and the surrounding areas using the flame work technique, comprising the sample population for correlational study plan. Stratified sampling was used in particular regions of Uttar Pradesh, India, to collect the data. The study identifies positive correlation between family size and artisan participation along with moderate and weak associations across other variables. The study concludes and indicates that glass flame work is sustained through family-centered labour systems. The outcome here is to provide evidence-based insights to inform policy interventions, ethical working practices, and sustainable strategies to guard the living traditions by keeping livelihoods for future generations.

Keywords: Working process, Glass flame work, Firozabad glass artisans, Artisan structure.

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1. Introduction

Firozabad near Agra, India, is referred to as the "City of Glass" for its long history of glassblowing and glass craftsmanship (Khan et al., 2018). Glass Flame Work Craft, a visually stunning exhibit in Firozabad, combines age-old techniques with a hint of modern creativity. This culturally vibrant city is home to generations of expert glass flame workers who have refined their craft (Ranjan & Ranjan, 2009). In this craft, borosilicate and Soda-lime silica glass is manipulated and molten precisely over an open flame by hand to create delicate and detailed works of art (Singh et al., 2012). Glass rods and sticks are shaped into a wide variety by Firozabad's artisans, who create almost everything from beautiful figurines and elaborate decorations to vibrant glassware. In Firozabad and Purdilnagar, the Craft is a customary art form, a way of life handed down through the generations. The artisans enjoy maintaining and enhancing their cultural legacy while modifying their methods to suit modern preferences. Visitors of Firozabad can experience on the glass flame work process first-hand. Indian craft traditions have run historically as sites of production along with a complex social system where labour relations, skill, and cultural stories as knowledge are transmitted through generations. This hand-sculpted craft process depends on tacit knowledge and is woven through a family-based production structure and practices. In this domain, limited empirical understanding is available of how contemporary employment, labour participation, and skill hierarchies run within artisan families in present socio-economic conditions. Precisely, the changing dynamics of family structure, gender wise participation in craft, recruitment of external participation in craft, differentiation of glass-forming skill and children's involvement have become a part of systematic study. Market pressure and delivery timeline constantly shape the production practices and their ethics. Thus, it is necessary to understand whether the traditional family-based model continues to sustain employment organically or if the practice is undergoing structural shifts. This study tries to position the study as an economic activity as well as a household-centred labour system where production decisions, skill transfer and workforce are linked internally. The system of Firozabad and Purdilnagar is characterised by mounted participation; her skill artisan sculpts and forms the shape of the product, and also a decision maker, semi-skilled artisans are involved in finishing related works, and unskilled artisans contribute to ancillary assignments. Along with this, hired artisans and child workers were understudied components in the context of production. This paper examines the relationship among the contributors and provides a deeper understanding of employment stability. The study analysed 90 artisan families actively engaged in flame working. The study maps the way labour is organised within households and how generational learning shapes the craft continuity. Through this lens, the study aims to investigate the relationship between the craft contributors and stakeholders within the family. The paper seeks to understand and discuss how the specific categorical labour process may influence craft production. Exploring the relationship is hoped to provide insights that can inform strategies for craft development, which will eventually foster healthy craft practice for generations.

2. Research scope and methodology

The study is based on primary data collected. Firozabad and Purdilnagar in Uttar Pradesh, India, were chosen as the glass flame work craft is only practised here. The study also found a few families in the Khanna area in Kolkata, West Bengal, who work on a similar borosilicate glass process but were intentionally excluded from this study. The first part of a study published in 2023, titled "Glass flame-work of Firozabad: Unfolding the potential clusters and design intervention (Roy Chowdhury & Mondal, 2023), unfolds in detail the craft, raw material, and potential craft clusters and concludes with some product diversification on the craft. This second phase of the study chooses family samples and adopts correlational methods to project the craft's employment and labouring engagement status in the present scenario.



Figure 1: Hollow glass tube forming process

3. Objectives

- To examine the artisan participation dynamics and its structure in the family labouring system, including in-house craft practitioners and hired artisans.
- To analyse the organisation of artisans in production, considering employment strength, its stability and the articulation of market response to product demands.
- To investigate gender participation, age groups, role of children in the production system.
- To explore and articulate the generational learning process and its impact on the development of craft in the present context.

4. Hypothesis

The study is based on a correlational research design, and below are the null and alternative hypotheses formulated:

- H_1 : There is a significant relation between the total number of family members and the total number of contributing artisans involved in production.
- NH_1 : There is no relation between the total number of family members and the total number of contributing artisans involved in production.
- H_2 : There is a significant relation between the number of male and female artisans involved in production.
- NH_2 : There is no relation between the number of male and female artisans involved in production.
- H_3 : There is a significant relationship between artisans and skilled artisans involved in production.
- NH_3 : There is no relation between artisans and skilled artisans involved in production.
- H_4 : There is a significant relationship between the artisan and the recruited artisan involved in production in a family.
- NH_4 : There is no relation between a family artisan and a recruited artisan involved in production within a family.
- H_5 : There is a significant relationship between artisans and unskilled/semi-skilled artisans involved in production.
- NH_5 : There is no relation between an artisan and an unskilled/semi-skilled artisan engaged in production.
- H_6 : There is a significant relation between artisans and child workers involved in production.
- NH_6 : There is no relation between artisans and child workers involved in production.

5. Variables

Families: Here, the artisan family who live in Firozabad, Purdilnagar, and adjoining villages and towns are involved in glass flame work making. The families considered who were directly or indirectly involved in glass lathe work, bead working, glass flame work, and the assembly process of flame work components.

Family Contributors: Contributors are the artisans residing within the family at different hierarchies of the glass-making process. This study identifies contributors into three stages: skilled contributors, semi-skilled contributors, and unskilled contributors. Skilled contributors are significant in the glass sculpting process, semi-skilled contributors are involved in finishes and other glass processes, and unskilled contributors are considered random supports like packaging, transport, cleaning, etc., in the craft.

Recruited contributors: The artisans who do not have an in-house workshop support themselves as hired contributors for other craft-making households. Hired contributors primarily work on a daily payment basis and are preferably skilled. It is observed that in a bigger scale of production, hired contributors are called in one glass-making setup to execute the order in a short timeline.

Child contributors: It refers to children below 18 years old contributing to the craft with or without their consent. The children are sometimes forced to work for their family business to support the family's economic growth. At the same time, they also learn

the craft by practising with the elders. It has also been observed that some children work for other households as hired workers. Here, the children are considered to only contribute to the family.



Figure 2: Master artisan (Manoj Kr) working in-house with recruited artisans

Several locations were identified as research areas, namely Mohalla Neyi Basti, Colony area, Kosba Nagar, Dhonkeli, Suhagnagar, Raja Kaa Taal Kheda, Potlachungi, Laghi, Station Road, Purdilnagar, and Sankarpur. A survey was conducted by creating a questionnaire and interviewing 90 families who practice the glass flame craft, and the data were collected. The participants permitted the data to be collected. Each household's data was filled out for the survey by the researcher in person. Both quantitative and qualitative questions were considered during the study.

7. Sampling eligibility parameters for data collection

- The families were informed, and the data were collected with their consent.
- Single artisans who are not attached to the family are also considered samples.
- Family members who work both in-house and as hired artisans for other households. Both cases were considered.
- Adult male and female artisans were considered.
- Children who contribute at their level are also considered in the variable.
- The research was restricted to Firozabad, Purdilnagar, and its adjoining places.
- Partially able artisans who contribute were included.
- Families who did not want to participate were not considered.
- Families who occasionally and partially perform the craft were excluded.
- Other than the Flame work technique, all glass process workers and samples were excluded.
- Artisan and master artisans who could not work anymore because of their age and physical condition were excluded as contributors.

For data analysis, the Spearman correlation coefficient statistical method was used (Reed, 1917). The said analysis gives a direction of negative and positive strength in measure. It indicates a linear relationship between two continuous variables.

8. Workforce hierarchy and assessment

Based on the 90 family samples collected and studied, the data have been divided into three different categories. All the artisans who are dedicatedly involved in making the main glass products are considered Skilled workers. Sometimes, they also decide the market selling prices and oversee the overall market. They are also responsible for taking orders, what to make, how to make it, and determining the quantity and quality of material to be used. Sometimes, the most senior craft persons also decide the work that needs to be assigned. When hired artisans are needed due to delivery deadlines and work pressure, they decide whom to take and for how long based on the wages.

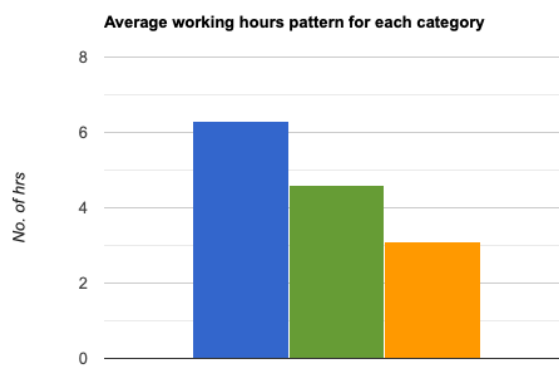


Figure 2: Average working hours pattern

Some family members are involved in product finishing. They work at the end of making the product. When products are made in two or more parts, later, they are joined together by heating and moulding. They also work when the products are broken

and need a second attempt to rebuild. These kinds of artisans can be identified as semi-skilled workers, as they support and are still learning the craft or have already discovered it. It is observed that members who are younger and are considered beginners are making the same mistakes.

The other support within the family members can be considered unskilled workers. They are responsible for the random support of the production chain and delivery. The types of support are identified as adding refills in ball pens, sticking decals on the product surface, cleaning the glass rods before stacking and working, cotton cutting, assembly of hanging lights, packaging, counting, stacking, and transportation, etc. Since they do not contribute to forming the products, unskilled workers have been considered with respect to the glass-forming technique.

In the study, children were also found to contribute to the workflow at different levels. In this study, children who are below 18 years old and working are also considered. As per the family, skilled members spend 6.3 average hours per day for product making and overall supervision and management work. 4.6 average hours per day are spent on additional support towards finishing for semi-skilled members. 3.1 average daily hours are spent on supportive work, considered unskilled work. Figure 3, provided below, shows the graphic representation of the same.

9. Employment dynamics and data interpretation

The glass products of flame work need intense concentration while working with heat, and they are entirely done by hand. The techniques of working and becoming skilled can only be transmitted through learning by generations from childhood, as it takes a lot of time and practice to acquire the knowledge of handling glass. There are a number of ways to make the same product with various aesthetics and techniques, which makes each artisan and the family different from others' work. Thus, each of the families stands with different aesthetic values. In this process of work, most of the families, all members are involved directly or indirectly in the craft. For the same reason, there is a work hierarchy among family members. Children grow up by being in the system and learning about the material and its process. Almost all the places and corners of Firozabad are occupied by glass preparation and processing stages. It is like the town is moving with a rhythm for making glasses. Quick learners among the family's children have become an addition to the production and support. It is also observed that child labour of 10 to 15 years or around, which is commonly accepted in the Firozabad community, also takes part in daily wages for other artisans and industries. Below, the statistical discussion explains the relation at various levels of production and family contribution, which eventually projects employment characteristics.

Table 1: Relation between total family members and contributors' distribution of Firozabad

Table A											
Total members in family	Number of contributing members										Total family samples
	1	2	3	4	5	6	7	8	9	10	
1	0	0	0	0	0	0	0	0	0	0	0
2	3	7	0	0	0	0	0	0	0	0	10
3	0	6	13	0	0	0	0	0	0	0	19
4	0	1	6	9	0	0	0	0	0	0	16
5	0	0	2	5	7	0	0	0	0	0	14
6	0	0	0	0	8	4	0	0	0	0	12
7	1	0	0	0	2	3	3	0	0	0	9
8	0	0	0	0	0	0	3	0	0	0	3
9	0	0	0	1	0	1	2	0	0	0	4
10	0	0	0	1	0	0	0	2	0	0	3
Total family samples	4	14	21	16	17	8	8	2	0	0	90
Correlation coefficient										0.91502835	

Following the formula of Pearson correlation coefficient (PCC) from the raw data set attached in the appendix for Table 1, interpreted above,

$$\sum x = 436; \sum y = 364; \sum xy = 2034; \sum x^2 = 2506; \sum y^2 = 1738; n = 90.$$

Where x is the number of family members, and y is the number of family contributors within the family sample. Here, n is the total number of families studied.

As per PCC correlation equation (Where r stands for the correlation coefficient value);

$$r = \frac{(\sum xy - (\sum x \sum y)/n)}{\sqrt{(\sum x^2 - (\sum x)^2/n) (\sum y^2 - (\sum y)^2/n)}}$$

$$r = (2034 - (436 \times 364)/90) / \sqrt{(\{2506 - (436)^2/90\} \{1738 - (364)^2/90\})}$$

r=0.83

$\therefore$ Correlation coefficient(r) is = 0.83

In Table 1, the total number of samples was 90 families taken as the primary data set from the field survey. The objective was to see the dependable relationship in context to production, which eventually projected the picture of the employment of flameworking. There are 43 families, and all family members contribute, which is almost half of the data population. The correlation coefficient of the given database in the relation between family members and family members involved in craft-making is 0.83. There is a significant, strong positive correlation between the two data sets. From this, it is clearly understood that the family members require more involvement during work pressure, and because of that, the benefit goes back to the family. It is also observed that as the number of families increases, the contributors also increase. Therefore, the correlation coefficient of the data set is statistically significant. For the raw data set reference, the appendix part of the paper may be referred to.

Table 2: Male and Female artisan distribution and relation

Table B						
Number of male artisan	Number of female artisan					Total samples
	1	2	3	4	5	
1	7	6	3	0	0	16
2	10	11	1	2	0	24
3	9	13	3	4	0	29
4	3	12	1	4	0	20
5	0	0	1	0	0	1
Total samples	29	42	9	10	0	90

Following the formula of the Pearson correlation coefficient (PCC) from the raw data set attached in the appendix for Table 2, interpreted above,

$$\sum x = 236; \sum y = 180; \sum xy = 493; \sum x^2 = 718; \sum y^2 = 438; n = 90.$$

Where x is the number of male artisans, and y is the number of female artisans within the family sample. Here, n is the total number of families studied.

As per the PCC correlation equation (Where r stands for the correlation coefficient value);

$$r = (\sum xy - (\sum x \sum y)/n) / \sqrt{(\{\sum x^2 - (\sum x)^2/n\} \{\sum y^2 - (\sum y)^2/n\})}$$

$$r = (493 - (236 \times 180)/90) / \sqrt{(\{718 - (718)^2/90\} \{438 - (180)^2/90\})}$$

$r = 0.23$

$\therefore$ Correlation coefficient(r) is = 0.23

Table 2 shows that both males and females are involved in the craft making. Male artisans mainly sculpt the main body of the product. Then, it is handed over to the other family members and sometimes other households for further finishing and decorations. Male artisans are more into product sculpting, transport, dealing with clients, procuring raw materials like glass rods and tools, maintaining, arranging, refilling gas and oxygen cylinders, etc. In contrast, female artisans are mainly involved in decorating products, packaging, cleaning, and polishing. It is observed that women are equally involved in a family with other daily household work. Men artisans are kept under the skilled and semi-skilled categories.

In contrast, women artisans are kept under the semi-skilled and unskilled categories with respect to sculpting the product within the framework. Regarding the discussion in the table above, an attempt was made to examine the male-female artisan ratio and the involvement relation. It is statistically seen that the craft is more popular and practised among male artisans. Male artisans

who do not have the in-house setup also work for other households. At the same time, most of the women are indirectly involved. In the dataset, there are 25 families where the gender ratio is equal, 49 families where male artisans are contributing more in numbers, and 16 families where female artisans are contributing more in numbers. The correlation coefficient between male and female artisans is 0.23. It is not a substantial value and is statistically insignificant, and has a weak correlation. In the context of production, male and female gender participation doesn't have a significant impact. We also cannot deny that both genders cooperate well in production.

Table 3: The relation between artisan and skilled artisan within the family

Table c									
Number of artisan	Number of skilled artisan								Total samples
	1	2	3	4	5	6	7	8	
1	0	0	0	0	0	0	0	0	0
2	8	8	0	0	0	0	0	0	16
3	3	13	6	0	0	0	0	0	22
4	5	3	8	8	0	0	0	0	24
5	1	5	5	2	0	0	0	0	13
6	0	3	2	0	0	0	0	0	5
7	0	0	4	2	0	0	0	0	6
8	0	0	3	1	0	0	0	0	4
Total samples	17	32	28	13	0	0	0	0	90
Correlation coefficient									0.515098282

Following the formula of the Pearson correlation coefficient (PCC) from the raw data set attached in the appendix for Table 3, interpreted above,

$$\sum x = 363; \sum y = 217; \sum xy = 943; \sum x^2 = 1701; \sum y^2 = 605; n = 90.$$

Where x is the number of contributing members and y is the number of skilled artisans within the family sample. Here, n is the total number of families studied.

As per the PCC correlation equation (Where r stands for the correlation coefficient value);

$$r = (\sum xy - (\sum x \sum y)/n) / \sqrt{(\sum x^2 - (\sum x)^2/n) (\sum y^2 - (\sum y)^2/n)}$$

$$r = (943 - (363 \times 217)/90) / \sqrt{(\{1701 - (363)^2/90\} \{605 - (217)^2/90\})}$$

$$r = 0.48$$

$$\therefore \text{Correlation coefficient}(r) \text{ is } = 0.48$$

Table 3 shows that 17 families have at least one skilled artisan, 32 have two skilled artisans, 28 have three, and 13 have four skilled artisans. There are 22 families, and all the artisans are skilled. It is also observed that some families do not have in-house glass workshops; instead, they have community workshops and work in other households as hired artisans or in some community projects. The correlation coefficient of the data set is 0.48, which is moderate but positive; it indicates that the people of Firozabad are constantly gaining their skills over generations. The total number of skilled artisans found is 217. ($17 \times 1 = 17$, $32 \times 3 = 64$, $28 \times 3 = 84$, $13 \times 4 = 52$). From Table C, out of 363 contributors, 217 artisans are considered skilled. This indicates that 147 artisans can be considered semi-skilled and unskilled artisans.

Table 4: The relation between artisan and recruited artisan in a family

Table D						
Number of family artisan	Number of recruited artisan					Total samples
	0	1	2	3	4	
1	13	7	2	0	0	22
2	5	8	4	0	0	17
3	12	7	3	2	0	24
4	10	3	3	0	0	16
5	11	0	0	0	0	11
Total samples	51	25	12	2	0	90

Correlation coefficient	0.572834579
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From Table 4, it is observed that 51 families are not recruiting any artisans, 25 families are recruiting one artisan, 12 families are recruiting two artisans, and two families are recruiting three artisans. There are 13 families where the artisan-to-recruited artisan ratio is 1:1. The correlation coefficient for the mentioned factors is negative and weak, but the relation is fragile. Thus, if the number of family artisans increases, then the recruitment of artisans goes down. However, with the increase in product production or a more significant number of orders, the more prominent family hires artisans for bulk production.

Table 5: The relation between artisan and semi/unskilled artisan within the family

Table E									
Number of artisan	Number of unskilled artisan								Total samples
	1	2	3	4	5	6	7	8	
1	4	0	0	0	0	0	0	0	4
2	12	13	0	0	0	0	0	0	25
3	5	10	11	0	0	0	0	0	26
4	3	4	6	0	0	0	0	0	13
5	2	3	3	2	1	0	0	0	11
6	0	0	3	0	0	0	0	0	3
7	0	0	3	0	1	0	0	0	4
8	0	1	0	2	1	0	0	0	4
Total samples	26	31	26	4	3	0	0	0	90

Correlation coefficient	0.683700798
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Following the formula of Pearson correlation coefficient (PCC) from the raw data set attached in the appendix for Table 5, interpreted above,

$$\sum x = 317; \sum y = 197; \sum xy = 792; \sum x^2 = 1381; \sum y^2 = 523; n = 90.$$

Where x is the total number of contributing members and y is the number of unskilled members contributing to the family sample. Here, n is the total number of families studied.

As per the PCC correlation equation (Where r stands for the correlation coefficient value);

$$r = (\sum xy - (\sum x \sum y) / n) / \sqrt{(\sum x^2 - (\sum x)^2 / n) (\sum y^2 - (\sum y)^2 / n)}$$

$$r = (792 - (317 \times 197) / 90) / \sqrt{(1381 - (317)^2 / 90) (523 - (197)^2 / 90)}$$

$$r = 0.62$$

$$\therefore \text{Correlation coefficient}(r) \text{ is } = 0.6$$

Table 5 shows that 197 (26×1, 31×2, 26×3, 4×4, 3×5) artisans may fall under semi and unskilled. There are 29 (4+13+11+1) families where all artisans fall under the semi/unskilled category. In this case, it is found that four individual artisans are considered as a family, as they claim, and are considered unskilled but work for other households. The correlation coefficient of the data set is 0.62, which is a strong positive relation and statistically significant.

Table 6: The relation between total family members and child workers within the family

Table F											
Total members in family	Number of children contributing										Total family samples
1	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0
3	9	0	0	0	0	0	0	0	0	0	9
4	7	6	0	0	0	0	0	0	0	0	13
5	4	3	1	0	0	0	0	0	0	0	8
6	3	5	1	0	0	0	0	0	0	0	9
7	2	5	3	0	0	0	0	0	0	0	10
8	0	4	2	0	0	0	0	0	0	0	6
9	0	2	0	0	0	0	0	0	0	0	2
10	0	0	1	0	0	0	0	0	0	0	1
Total family samples	25	25	8	0	0	0	0	0	0	0	58
Correlation coefficient										-0.598550208	

Following the formula of Pearson correlation coefficient (PCC) from the raw data set attached in the appendix for Table 6, interpreted above,

$$\sum x=319; \sum y=99; \sum xy=589; \sum x^2=1948; \sum y^2=197; n=58.$$

Where x is the number of members of the family, and y is the number of children contributing to the family sample. Here, n is the total number of families studied.

As per the PCC correlation equation (Where r stands for the correlation coefficient value);

$$r = \frac{(\sum xy - (\sum x \sum y)/n)}{\sqrt{(\sum x^2 - (\sum x)^2/n) (\sum y^2 - (\sum y)^2/n)}}$$

$$r = \frac{(589 - (319 \times 99)/58)}{\sqrt{(1948 - (319)^2/58) (197 - (99)^2/58)}}$$

$$r = 0.60$$

$$\therefore \text{Correlation coefficient}(r) \text{ is } = 0.6$$

From Table 6, it is observed that there are 58 total families with children (aged under 18) who contribute to the family. There are 99 children aged below 18 who are involved in craft making. It is observed that the data set has a positive correlation of 0.6. In the field of glass frameworking, it is noticed that the children learn the craft by helping their elders while crafting. The study also observed that the children are often involved in non-sculpting activities like parcel making, transport, taking loads, cotton cutting, box packing, tool sharing, and other aimless and arbitrary work, which do not help them learn the art of sculpting in the glass. It has a negative impact on their educational growth. In this case of statistical data, the relation is significant; the generation is slowly absorbing the craft as a primary stakeholder.

10. Labour ecology and findings

- The study articulates a significant relationship between the variables selected in the study. The study establishes that the glass flame work of Firozabad and Purdilnagar is organically sustained through a family-based artisan/worker structure. Here, product productions, transformation of skills and artisan employment are well interlinked with household structure and generational participation. A strong positive correlation ($r=0.83$) between family size and artisan contributing to craft suggests that glass flame work craft making is more than an economic activity, it is a collective family enterprise that activates during production pressure.
- Moderate positive relationships between total artisans and skilled contributors ($r=0.48$) and between artisans and semi/unskilled contributors ($r=0.62$), these suggest and indicate that layered skilled ecology within the same family coexist with learning, assistance and master craftsmanship.

- A weak negative relationship with recruited artisans ($r = -0.15$) indicates that the preference for in-house artisans and workers, and it reveals that the pliability of family labour and family-based production system, along with external recruitment, function only as an appended mechanism during the market demand.
- Participation based on genders ($r = 23$), while cooperative, remains structurally differentiated; core sculpting roles are assigned by men and women while contributing largely toward product finishes and other support-related tasks. This suggests an undiscovered hierarchy of skills rather than engagement absence. The R value does not demonstrate a strong linear relationship in terms of proportional contribution.
- A positive correlation between family size and child workers ($r = 0.60$), this underscores the early encounter with the craft but raises ethical concerns and educational challenges as their involvement in non-learning labour work. Through these findings, the study suggests the requirement for context-sensitive interventions that make the intergenerational skill transfer more robust while safeguarding the children's education. Structured apprenticeship models, post-school craft learning patterns, and community training centres. Policy measures shall focus on skill development for women artisans, formal recognition of semi-skilled roles and artisan involvement, improvement in working conditions, these may reduce over-dependency on unpaid family labour. This may ensure the balance between cultural preservation and social sustenance of the craft of Firozabad, and this continues as an ethical, dignified, and economically viable practice for future generations.

11. Conclusion

The study concludes that the craft has strong internal correlations and a familial enterprise, completely sustained by a layered skill-based labour ecology that requires minimal external support. Economic activity, skill transfer, and labour patterns are inseparable from household structure and participation. On the other hand, gender roles and child involvement reveal an underlying structural hierarchy that raises serious ethical concerns. The study, therefore, needs sensitive interventions such as apprenticeships, support & recognition of semi-skilled artisans and women, post-school craft learning opportunities for children, economic development through product diversification, and improvements in working conditions to strengthen generational learning and reduce dependency on the unpaid family labour system. These suggestive measures may uplift the craft and make it socially responsible, dignified, and economically sustainable.

12. Limitations of the study:

- The finding may be influenced by interviewee bias.
- The research was carried out with regular craft practitioners only.
- The study was limited to the Firozabad and Purdilnagar area in Uttar Pradesh, India.

13. Data availability statement

Data will be made available on request. For table A, the raw data plot is placed below for reference.

HOUSE	CHILD WORKER	ARTISAN	WORKER	CHILD	WOMAN	MAN
HOUSE 1	CHILD WORKER	20	200	8	64	80
	ARTISAN	20	200	8	64	80
HOUSE 2	CHILD WORKER	20	200	8	64	80
	ARTISAN	20	200	8	64	80
HOUSE 3	CHILD WORKER	20	200	8	64	80
	ARTISAN	20	200	8	64	80
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HOUSE 117	CHILD WORKER					

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Socioeconomic Determinants of Women-Led Family-Based Entrepreneurship in Santiniketan Gharana Craft: Evidence from Birbhum District, West Bengal

Sudeshna Mitra^{1*}, Amit Kumar Hazra^{1*}, Srinivasan Balachandran^{2*} & Digvijay Singh Dhakre^{3*}

¹Department of Lifelong Learning and Extension. sudeshna.mitra@visva-bharati.ac.in, amit.hazra@visva-bharati.ac.in

² Department of Environmental Studies, Institute of Science. s.balachandran@visva-bharati.ac.in

³Department of Ag. Extension, Ag. Economics and Agricultural Statistics, Institute of Agriculture. dhakreds@gmail.com

*Visva-Bharati, India.

Abstract:

Education within the family is one of the most critical drivers of WFBE, while caste and primary income act as structural constraints. Basic literacy and supportive family environments play a crucial role in enhancing women's participation and advancement in the socioeconomic sphere, irrespective of caste, thereby contributing to their empowerment and broader socioeconomic upliftment. Rooted in Rabindranath Tagore's vision of rural reconstruction, the Santiniketan Gharana craft exemplifies how traditional craftsmanship can foster self-reliance, preserve cultural heritage, and create sustainable livelihood opportunities for women. Emerging from the Sriniketan Experiment, this craft tradition has evolved into a community-based, environmentally conscious production system that links economic empowerment with cultural preservation and sustainable rural development. Any illiterate woman can adopt this craft and start a business with minimal initial investment, which helps secure basic livelihoods. The study uses one-way ANOVA to examine the socioeconomic conditions of WFBE in and around Santiniketan and the contribution of Santiniketan *gharana* craft to society. Findings show key challenges related to financial stability, long-term sustainability, and technological barriers. An important finding: Santiniketan *gharana* craft can be adopted by illiterate women, enabling them to generate income and support their families. This study contributes to the achievement of SDG1, SDG socioeconomic, and SDG2 by promoting inclusiveness, sustainability, and a culturally rooted entrepreneurship model.

Keywords: socioeconomic upliftment, Santiniketan *gharana* craft, one – way ANOVA, SDGs, WFBE

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1. Introduction:

In third-world countries, entrepreneurship plays an important role in economic growth. Entrepreneurs demonstrate innovation, risk-taking, and self-motivation. Entrepreneurship education and training can help reduce unemployment. Entrepreneurship plays an important role in global economic growth. Countries like the USA and newly industrialised nations in South Asia (South Korea, Malaysia, Taiwan) have shown how fostering entrepreneurship leads to socioeconomic, innovation, and national development (Nafukho, 2010).

Women – led family – based entrepreneurship (WFBE) refers to entrepreneurship in which women play the major role while business ownership, management, decision – making power, labour are embedded within the family. This type of entrepreneurship combine economic activities with family resources, knowledge, social support making them relevant in rural economy.

Entrepreneurship has the potential to improve socioeconomic conditions in developing nations like Kenya (Kaburi, 2017). In Africa, especially in the Sub-Saharan region, youth face high unemployment rates, which entrepreneurship could help reduce (Filmer, 2014). In Kenya, entrepreneurship education has been introduced in schools and vocational training programs to promote self-employment. A lifelong learning approach to entrepreneurship, from primary school to adulthood, may be a better way to reduce unemployment. However, these programs need more innovation and institutional support. In this context, the government plays a major role in creating a supportive environment for new entrepreneurship. In developing nations like Kenya, proper government support and entrepreneurship education can be powerful tools for addressing unemployment and fostering economic growth (Nafukho, 2010).

The social exclusion of rural women is not a new issue, and it is deeply rooted in rural societies (Alonso, 2014). In developed nations, rural women also face challenges such as depopulation, an ageing population, gender imbalance, and limited services (Knodel, 2003). Women are suffering in two ways, i.e., gender bias and geographical isolation. These factors contribute to social exclusion, poverty, and limited labour markets (Zelinsky, 1982). Rural women are suffering from societal norms that restrict their freedom and force them into traditional domestic roles. Due to the lack of essential services and infrastructure, women are often unable to fully participate in economic activities (Alonso, 2014). Globally, women receive unequal wages for similar work, while men dominate higher income brackets (Mies, 2014). Through training and entrepreneurship programs, these problems can be addressed, thereby enhancing income generation and participation in rural development (Echtner, 1995). Women-led entrepreneurship in traditional, non-agricultural sectors such as handicrafts, rural tourism, and natural

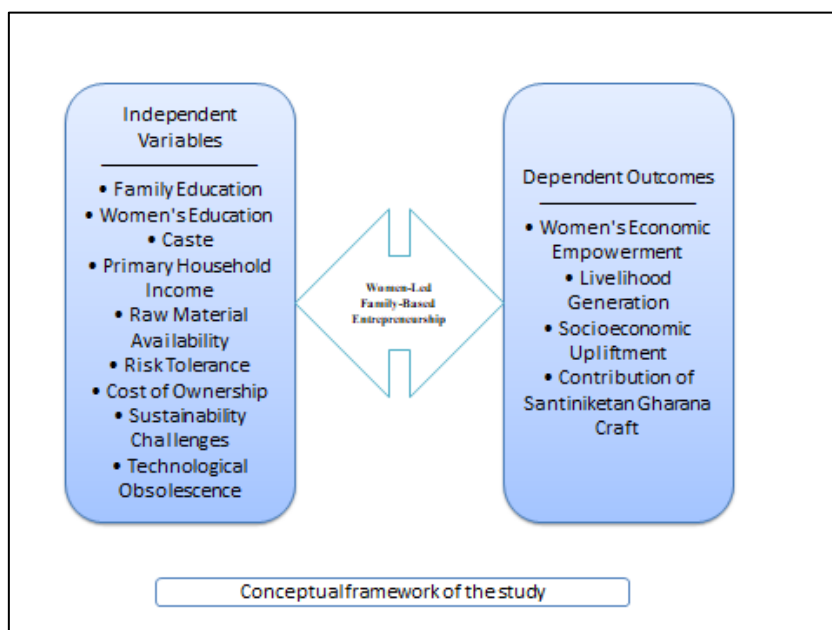
cosmetics has emerged as an important pathway for rural development. Sustainable development requires gender-sensitive rural policies, entrepreneurial innovation, and digital inclusion to improve long-term socio-economic conditions (Suseno, 2021).

Rural development without women's participation is nearly impossible. Rural women entrepreneurs play a critical but often unrecognized role in sustaining rural communities by contribute economically but also reinforce the social fabric, provide community services, and preserve local cultural identity. However, entrepreneurship policies often rely on certain assumptions, such as women being less successful entrepreneurs, entrepreneurship always being desirable, and success being measured primarily by profit and growth. These policies often ignore gender equality, gender roles, motivational factors, and geographical challenges (Ahl & B., 2024). Most women entrepreneurs operate within locally embedded and community-oriented ventures (Seelos, 2011). Rural women often value independence, family legacy, and community roots more than profit maximization. They mainly utilize local resources and involve family members in their businesses. Formal or external support systems are rarely preferred or easily accessible (Petridou, 2008). Women-led businesses contribute to rural economic growth by creating employment opportunities, supporting public services, and promoting rural tourism. Policies should therefore focus on providing support systems tailored to the diverse needs and motivations of entrepreneurs, integrating gender perspectives into entrepreneurship policies, improving rural infrastructure (such as healthcare and education), recognizing women-led businesses, and providing financial and institutional support to local women entrepreneurs (Ahl, 2024).

In rural entrepreneurship, understanding the relationship between women entrepreneurs' business-family interface and firm performance is important. Family support, includes financial assistance for and psychological encouragement, play an important role in women's entrepreneurship activities (Osorio, 2017). Gender inequalities can negatively affect business performance, particularly when personal or family-related constraints limit women's entrepreneurial activities (Cerrato, 2018). Cultural dimensions such as power distance, individualism, and uncertainty avoidance influence entrepreneurship across developed and developing nations. In developed nations, financial support from families often has a positive impact. In contrast, in developing nations, family funding may be limited because formal financial institutions are less accessible or less supportive. However, moral and emotional support from family members generally has a positive impact on women's entrepreneurial success (Welsh, 2018).

Economic inequality, particularly income inequality and income mobility, influences the likelihood of individuals engaging in social entrepreneurship (Pathak & Muralidharan, 2018). Social entrepreneurship differs from traditional entrepreneurship. Traditional businesses primarily focus on profit generation, whereas social entrepreneurship aims to address societal problems such as poverty, illiteracy, food scarcity, healthcare access, and housing in a sustainable way (Pathak, 2017). Higher income inequality encourages social entrepreneurship by motivating individuals to address community problems, whereas greater income mobility reduces this need by providing better economic opportunities. Consequently, high income inequality combined with low income mobility creates favorable conditions for social entrepreneurship (Pathak & Muralidharan, 2018). Economies with low income inequality and high income mobility are generally more favorable for commercial entrepreneurship, as resources and opportunities are more widely distributed (Brunori, 2013).

Globally the importance of women entrepreneurship, challenges and opportunities are highly context – specific. Therefore, understanding WFBE within traditional craft – based rural economy is essential, specifically in the Indian context.



In developing countries like India, the participation of rural women in business remains relatively low (Puhazhendhi, 1999). Rural women entrepreneurs face numerous challenges while running their businesses, including social and cultural barriers (Das, 2000). A large proportion of women in rural India are illiterate or semi-literate, and many lack confidence and self-esteem. They often prioritize family responsibilities over career development. Rural women tend to focus on family well-being rather than developing entrepreneurial skills for income generation (Sidhu, 2006). Many women lack awareness of self-reliance and their legal rights, and in many rural societies, they are treated as secondary citizens, which perpetuates cycles of poverty. In India, there exists a paradox between skill potential and financial resources (Banerjee, 2006). Economically poor women often possess strong

entrepreneurial abilities but lack financial support. The education system has not sufficiently empowered women to recognize

and utilize their entrepreneurial potential. Rural women often face difficulties working with male workers, particularly those who are uneducated or semi-educated. They also experience neglect from financial institutions, which limits their access to capital. Another major challenge is limited access to professional education, which contributes to low participation of women in entrepreneurship. In rural areas, mobility constraints also significantly restrict entrepreneurial activities. Therefore, government initiatives should focus on continuous motivation, awareness programs, cooperation with women entrepreneurs, and the promotion of business opportunities (Kumbhar, 2013).

The Santiniketan Gharana craft, rooted in Tagore's vision for rural development, exemplifies how traditional craftsmanship can foster self-reliance, cultural preservation, and women's empowerment. Emerging from the Sriniketan Experiment, this movement created sustainable livelihood opportunities for women through eco-friendly and community-based production systems. Despite its significance, limited empirical research has examined how women-led family enterprises in such settings operate and create social and economic impact. Existing literature largely focuses on urban or global contexts, often overlooking the complex realities of rural enterprises. This study addresses these research gaps – there are limited empirical research integrated with socio – economic condition of WFBE within *Santiniketan gharana* craft ecosystem. Also it is focused on examining the relationship between primary income, education level, availability of raw materials, risk tolerance, cost of ownership, sustainability challenges, and technological obsolescence in rural WFBE, *Santiniketan gharana* enterprises. By situating entrepreneurship within family and cultural contexts, the study provides deeper insights into women's economic empowerment. Accordingly, the study aims to address the gap by examining the socioeconomic condition of women-led family businesses in and around Santiniketan and evaluate the contribution of Santiniketan *gharana* craft to society.

The present study aims to examine the socioeconomic dynamics of Women-Led Family-Based Entrepreneurship (WFBE) associated with Santiniketan *gharana* craft in the Birbhum district of West Bengal. Specifically, the study seeks to achieve the following objectives: i) To examine the socioeconomic profile of women engaged in family-based entrepreneurship related to Santiniketan *gharana* craft. ii) To analyze the relationship between primary household income and key socioeconomic factors such as caste, women's education, and family education. iii) To evaluate how enterprise-related factors—including availability of raw materials, risk tolerance, cost of ownership, sustainability concerns, and technological

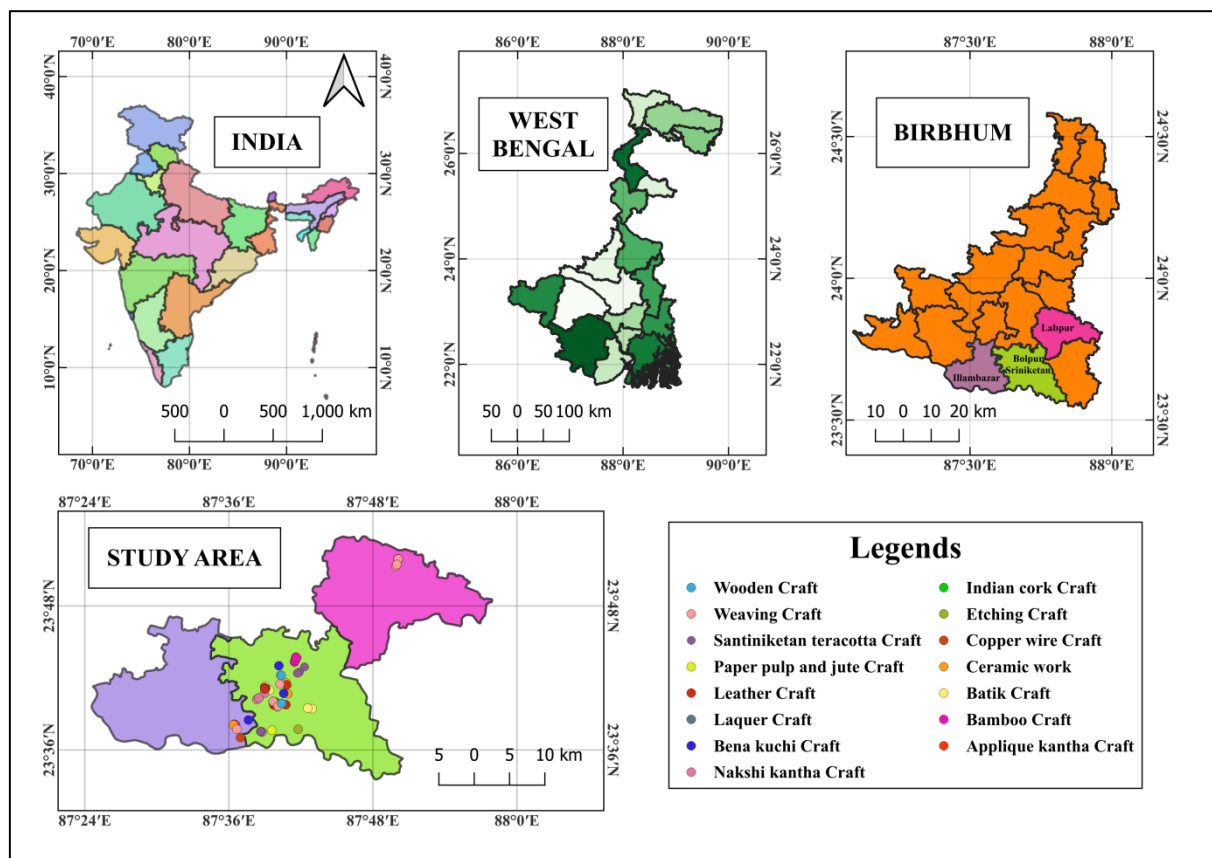


Figure 1: A Study area (Bolpur Santiniketan, Labpur, and Ilambazar block of Birbhum district, West Bengal)

obsolescence—influence WFBE. iv) To assess the role of Santiniketan *gharana* craft as a livelihood-generating activity contributing to women's economic participation and socioeconomic empowerment in rural areas.

2. Methodology:

The study was conducted in the Bolpur–Santiniketan, Labpur, and Ilambazar blocks of Birbhum district, West Bengal, during the year 2024–2025. The data were collected through personal interviews and self-administered questionnaires. Respondents were specifically selected from families engaged in “Santiniketan *gharana* craft – WFBE.” The researchers recorded the respondents’ concerns through in-person interviews conducted at their homes, marketplaces, and workplaces.

Framing sample and data collection:

A purposive sampling approach was primarily adopted to identify families involved in “Santiniketan Gharana craft – WFBE” in areas around Bolpur–Santiniketan, specifically in Sriniketan and Santiniketan blocks and Ilambazar block of Birbhum district, West Bengal. This study was conducted entirely in rural and semi-urban areas of the above-mentioned blocks. For this study, the researcher conducted a door-to-door survey and collected data through personal interviews with the respondents.

Questionnaire:

For this research study, the questionnaire was first prepared in English and then translated into the local language (Bengali) to ensure better understanding of the questions and to establish a stronger connection with the respondents. The researcher used the reverse-translation method to ensure accuracy and eliminate translation errors. Before conducting the full-scale survey, a pilot study was carried out with ten families using the questionnaire to test its reliability and appropriateness and to gain a preliminary understanding of the possible outcomes of the study.

The questionnaire included questions designed to capture the socioeconomic condition of women-led family-based entrepreneurs and examine how the family’s primary income level affects their businesses.

The dependent variable was primary income of WFBE in Santiniketan gharana craft and the independent variables are caste, women education, family education, availability of raw materials, cost of ownership, sustainability challenges, technological obsolescence. Here, primary income refers to WFBE income.

In this study, a total of 184 samples were selected. Descriptive statistics and one-way ANOVA analysis were used to achieve the objectives of the study. One-way ANOVA was performed using Jamovi (Version 2.6.44) software. One-way ANOVA was performed using Jamovi (Version 2.6.44) software. One-way ANOVA was used to examine whether significant differences existed in WFBE across different categories of the independent variables. Prior to conducting ANOVA, the assumptions of normality and homogeneity of variance were assessed. Normality was evaluated using the Shapiro–Wilk test and Q–Q plots, while homogeneity of variance was examined using Levene’s test. The assumptions were satisfied before proceeding with the analysis. Where the ANOVA results were statistically significant, Tukey’s Honest Significant Difference (HSD) post-hoc test was performed to identify which specific group means differed significantly. The results were interpreted using the F-statistic, degrees of freedom (df), and p-value.

In all figures of one – way ANOVA test, the red dot represents the sample mean primary income (PI) of – each caste group, education qualification, higher education qualification of the family, limited availability of raw materials, risk tolerance, cost of ownership, sustainability issue, technological obsolescence whereas the vertical red error bars indicate the 95% confidence interval around the mean. The confidence interval reflects the range within which the true population mean is expected to lie with 95% confidence.

3. Result and discussion:

In this study, 184 women-led family-based entrepreneurs were selected, all of whom are associated with the Santiniketan *gharana* of craft. In this research, eight variables were considered because these variables were found to have a significant relationship with the primary income variable (the only dependent variable). The findings focus on the socioeconomic conditions of WFBE and the factors affecting family businesses (Constantinidis, 2019).

Table 1: Over view of the caste, education qualification and highest education of the family

Variable	No. of respondents	Percentage (%)
CASTE		
SC	53	28.80
ST	42	22.82
OBC	43	23.37
General	46	25.00
<i>Total</i>	184	100

EDUCATION QUALIFICATION		
Literate	130	70.65
Illiterate	31	16.85
Graduate	23	12.50
Total	184	100
HIGHEST EDUCATION OF THE FAMILY		
Literate	122	66.30
Illiterate	9	4.89
Graduate	53	28.80
Total	184	100

[Note: Literate means respondents who possess basic reading writing ability – with or without formal primary education]

Based on the data analysis presented in Table 1, it is observed that the Scheduled Caste (SC) community (28.8%) is most actively involved in WFBE (Ashwini Deshpande, 2013). Traditionally, SC and ST communities have limited access to economic resources in this region. As a result, their primary income often depends on daily wage labor and small-scale agriculture. These families often start businesses out of necessity, using minimal capital and relying on informal support systems. Such ventures are typically micro-enterprises focused on survival and sustainability rather than rapid growth (Bvuma, 2020). Among the 184 households surveyed, 70.65% of women entrepreneurs are literate, but only 23 (12.5%) are graduates. Literate women entrepreneurs generally possess basic reading, writing, and numerical skills in the local language (Bengali). Graduate women have greater awareness of market dynamics, pricing strategies, customer interactions, and income diversification, and they can also read and write in English, although many lack the confidence to speak it fluently. Both literate and graduate women are more likely to participate in Self-Help Groups (SHGs). In contrast, illiterate women often face difficulties in accessing SHGs and microfinance facilities, which limits their ability to expand their businesses. Literacy plays an important role in encouraging participation in entrepreneurship, but low levels of education restrict business scalability and formalization (Palmer, 2020). People in rural areas, particularly women, often prefer low-risk and low-return business strategies. A literate family environment can provide better emotional, informational, moral, and financial support for WFBE (Reardon, 2007). In the Santiniketan region, 122 families (66.3%) are literate. Therefore, family members often assist women entrepreneurs in business decision-making, improving market linkages, handling financial matters, and using digital tools such as online marketing platforms and UPI (Unified Payments Interface) payment systems. Family education can compensate for women's educational gaps and contribute to the sustainability of entrepreneurship (Ramasamy, 2024).

Table 2: factors effect the women –led family based entrepreneurship(on the basis of literature review and primary discussion from Table:1)

Factors	Effects on entrepreneurship
Caste (socially disadvantaged groups)	Need – based entrepreneurship. Limited access to capital and market. High preference in informal and subsistence level businesses.
Women education level	Better operate businesses. Proper utilize SHGs and microfinance
Family educational background	Proper decision – making support. Better market exposure. Technological support. Increase entrepreneurship and sustainability.

Table 3: Over view of the entrepreneurship constraint the family

Variable	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
LIMITED AVAILABILITY OF RAW MATERIALS	19	69	4	40	52
RISK TOLERANCE	14	34	28	29	79
COST OF OWNERSHIP	20	22	24	79	39
SUSTAINABILITY ISSUES	16	12	19	65	72
TECHNOLOGICAL OBSOLESCENCE	34	21	44	35	50

Note: SD is Strongly disagree, D is Disagree, U is Undecided, A is Agree, SA is Strongly agree

Based on data analysis from Table 3, the primary income of the family significantly affects family entrepreneurship. It directly influences five major components of entrepreneurship: availability of raw materials, risk tolerance, cost of ownership, sustainability challenges, and technological obsolescence.

According to entrepreneurs in the local market of Bolpur, raw materials are generally available. About 37.5% of families disagree with the statement that raw materials are limited. However, the supply of raw materials is controlled by one or two local traders, which increases the price of raw materials in the local market (Fabian, 1959). Families with higher primary income can purchase raw materials in larger quantities from both local markets and wholesale markets in Kolkata. In contrast, families with lower primary income (below ₹10,000 per month) often buy raw materials at higher prices from local traders. Thus, raw material availability is not a universal constraint but affects a significant portion of women-led family-based entrepreneurs. Geographical location also influences transportation systems, which in turn affect supply chain efficiency in rural markets (Rodrigue, 2020). A large proportion of entrepreneurs (42.93%) strongly agree that risk-taking is essential for entrepreneurship. High risk tolerance often arises from economic pressure and livelihood insecurity (Gerrans, 2015). In Birbhum district, agriculture is comparatively less developed than in some other districts of West Bengal, which encourages women to participate actively in entrepreneurial activities to supplement household income. The cost of ownership is another significant factor affecting entrepreneurship, with around 64% of women agreeing or strongly agreeing that it influences their business operations. In many households, male family members control major financial decisions, which affects women's ability to invest in business activities. Starting a business is often easier than sustaining it over time (Bocken, 2015). Sustainability is therefore a major concern for women-led family-based enterprises (Xuan, 2024). Approximately 74.45% of respondents agree or strongly agree that maintaining sustainable income and market access is difficult. This issue reflects low primary income levels, limited scalability, heavy dependence on local markets, and reliance on intermediaries or middlemen. Technological barriers represent another hidden challenge for WFBE. Many families have low levels of income and education, which limits their exposure to digital technologies. In rural and semi-urban areas, women often have limited access to digital platforms and technological training. For 23.91% of respondents, the concept of technology in business remains unfamiliar, while 27.17% believe that outdated skills pose a risk to their businesses. This lack of access to modern tools and training reduces business competitiveness and operational efficiency.

Table 4: Mean and Standard Deviation (SD) on caste and PI of women led family based entrepreneurship

	Caste	N	Mean	SD
PI(rs.)	SC	53	16415.09	12286.93
	ST	42	18916.67	23885.89
	OBC	43	32046.51	27994.86
	GEN	46	22815.22	26723.76

Note: PI is primary income

Table 5: One way ANOVA analysis on caste and PI of women led family based entrepreneurship

	F	df1	df2	P
PI (rs.)	8.38	3	180	< .001

Here, **partial η^2** (" **η^2** or **partial η^2** "), calculated from the **F-value and degrees of freedom** using:

$$\eta^2 = \frac{F \times df_1}{F \times df_1 + df_2} \quad \eta^2 = \frac{8.38 \times 3}{8.38 \times 3 + 180} = 0.123$$

partial $\eta^2 = 0.123$, it is medium to large effect indicating that caste has association with primary income of WFBE.

Tables 4 and 5 show that the OBC category has the highest mean income (32046.51) and standard deviation (27994.86) compared with SC, GEN, and ST categories. This indicates a wider variation in income among OBC families. SC and ST groups generally belong to lower-income categories and face greater financial constraints. In one-way ANOVA showed that the differences in mean primary income (PI) among caste groups were statistically significant ($F(3,180) = 8.38, p < 0.001$). So, the null hypothesis of equal mean PI across caste groups was rejected. These identified that, caste is significantly associated with differences in PI of women – led family – based entrepreneurship (WFBE).

As a result, their family businesses often operate with limited initial capital, lower risk-taking capacity, and restricted access to market resources. In contrast, many OBC families have relatively better financial conditions. In several households, girls begin learning stitching and craft work from a young age (around seven years old). Women in these families receive greater encouragement for craft-

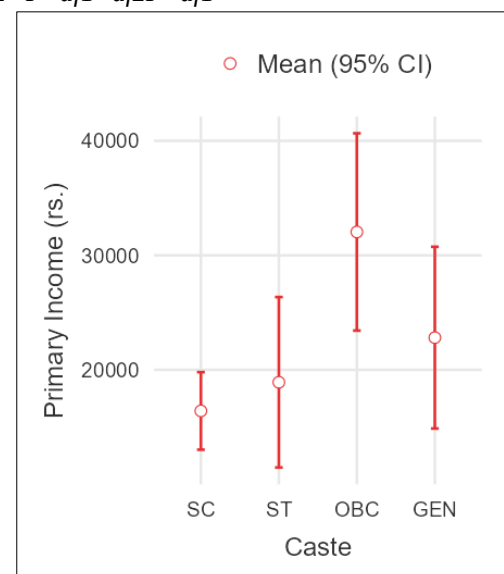


Figure 2: Post – hoc analysis Primary Income and Caste Note. * $p < .05$, ** $p < .01$, * $p < .001$**

based activities, and male family members often provide financial support for entrepreneurship. Income inequality across caste groups acts as an intersectional barrier, particularly for SC and ST families who face overlapping challenges related to gender, caste discrimination, and economic deprivation (Sen, 2019).

In Fig. 1, the PI for each caste group together with the corresponding 95% confidence interval (CI). The overlap among some CI suggests that not all pairwise group differences are statistically significant. Therefore, post-hoc multiple comparison tests are required to determine which caste groups differ significantly.

The significant one-way ANOVA result, Tukey's test was performed to identify the specific pairwise differences between caste groups. The Tukey post-hoc results indicated the caste pairs that differed significantly in primary income at the 5% significance level.

Here statistical findings represent that, OBC group has the highest average income level. Families belonging to the OBC community are often engaged in multiple crafts and occupations, which reduces their dependence on a single source of income. Another important factor is that many OBC families are able to access and utilize government policies and financial support more effectively.

On the other hand, SC and ST communities require greater policy attention and financial support to overcome structural disadvantages. Income inequality across caste groups indicates the need to focus more on SC and ST women-led family-based entrepreneurship development. To bridge this gap, empowerment programs should prioritize SC and ST communities through targeted microfinance schemes, skill development training, and improved market access. Improving business models through cross-caste collaboration and cooperative work structures may also help reduce economic disparities.

Policy interventions should be designed according to caste-based income disparities so that support mechanisms can effectively strengthen women-led family-based entrepreneurship (Bode, 2019; Xheneti, 2019).

Table 6: Mean and Standard Deviation (SD) on EQW and PI of women led family based entrepreneurship					
	EQW	N	Mean	SD	SE
PI (rs.)	L	130	24338.46	25902.86	2271.83
	IL	31	10887.10	5064.11	909.54
	GRA	23	25673.91	21894.17	4565.25

Table 7: One way ANOVA analysis on EQW and PI of women led family based entrepreneurship				
	F	df1	df2	P
PI(rs.)	13.09	2	181	<.001

Note: PI is primary income and EQW is education qualification of the women & L is Literate, IL is Illiterate, GRA is graduate.

Note: PI is primary income and EQW is education qualification of the women & L is Literate, IL is Illiterate, GRA is graduate.

Here, **partial η^2** (" **η^2** or **partial η^2** "), calculated from the **F-value** and **degrees of freedom** using:

$$\eta p^2 = \frac{F \times df_1}{F \times df_1 + df_2} \quad \eta p^2 = \frac{F \times df_1}{F \times df_1 + df_2}$$

partial $\eta^2 = 0.126$, it is moderate to large effect of women education positively associated with primary income of WFBE.

It is evident that literate and graduate women entrepreneurs earn higher incomes compared with illiterate women (Table 6). The mean income of literate women is 24,338.46, while the mean income of graduate women is 25,673.91. Although the total number of graduate women entrepreneurs is only 23, their income levels are significantly higher than those of both literate and illiterate women.

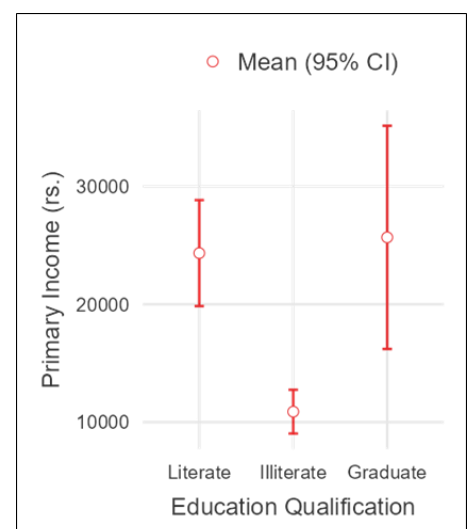


Figure 3: Post – hoc analysis Primary Income and Education Qualification, Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Here, for one – way ANOVA, the normality and homogeneity of variances were examined. Data normally distributed or not examined through Levene’s test (homogeneity test). After checking this one – way ANOVA performed.

Table 7 indicates that the difference in mean PI across education levels is statistically significant ($F = 13.09$, $df = 2,181$, $p < .001$). This indicates that at least one educational group differs significantly from the others with represent to primary income. This suggests that women’s education and PI have a positive relationship. Improving women’s education can enhance income potential and increase their confidence in dealing with market dynamics and customer interactions (Mueller, 2006).

Figure 2 the PI for each educational qualification group together with the corresponding 95% confidence interval (CI). The post-hoc analysis identify that, educational qualification has a statistically significant influence on women's PI.

Here, it is shows that illiterate women can still learn Santiniketan Gharana craft and operate businesses with family support, but their average income level generally does not exceed ₹10,000 per month. The figure clearly demonstrates that education has a statistically significant effect on income levels.

Table 8: Mean and Standard Deviation (SD) on LARM and PI of women led family based entrepreneurship

	LARM	N	Mean	SD	SE
PI (rs.)	SD1	19	18605.26	12980.30	2977.89
	D	69	10166.67	6275.34	755.46
	U	4	60000.00	11547.01	5773.50
	A	40	27325.00	20443.03	3232.33
	SA	52	32769.23	33573.81	4655.85

Table 9: One way ANOVA analysis on LARM and PI of women led family based entrepreneurship

	F	df1	df2	p
PI (rs.)	29.63	4	179	< .001

Note: PI is primary income and LARM is Limited availability of raw materials & SD1 is Strongly disagree, D is Disagree, U is Undecided, A is Agree, SA is Strongly agree

Here, **partial η^2** (" **η^2 or partial η^2** "), **calculated from the F-value and degrees of freedom** using:

$$\eta p^2 = \frac{F \times df_1}{F \times df_1 + df_2} \quad \eta p^2 = \frac{F \times df_1}{F \times df_1 + df_2}$$

partial $\eta^2 = 0.398$, indicating a large effect. So, limited availability of raw material are strongly associated with differences in primary income of WFBE.

In Table 8, the mean income values for the “Agree” and “Strongly Agree” groups are 27,325.00 and 32,769.00 respectively. Before conducting one – way ANOVA, the assumption of normality and homogeneity of variances were done. Normality was assessed by using Q – Q plot, Shapiro – Wilk test, and homogeneity of variances was examine by using Levene’s test. After checking this assumptions, the one – way ANOVA was done.

Table 9 represent the statistically significant different in mean PI among all five LARM groups ($F = 29.63$, $p < 0.001$). So, the null hypothesis of equal mean PI to all LARM groups was rejected, indicating that perception regarding availability of raw materials are significantly associated with differences in PI among WFBE.

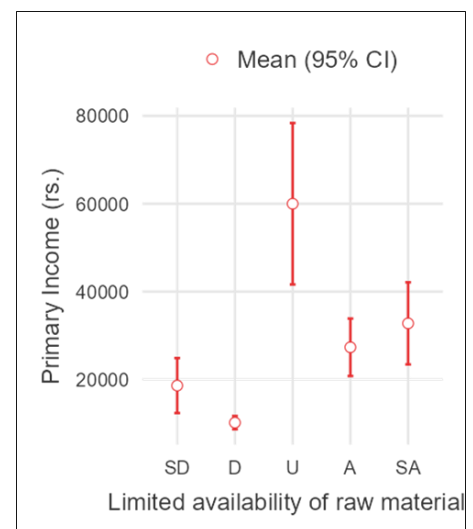


Figure 4: Post – hoc analysis Primary Income and Limited availability of raw material Note. * $p < .05$, ** $p < .01$, * $p < .001$**

This indicates that higher-income families have a better understanding of market dynamics, raw material pricing, and the factors contributing to higher raw material costs. These families often adopt strategies such as bulk purchasing or sourcing raw materials directly from wholesale markets in Kolkata, which helps them achieve better income outcomes. In contrast, low-income families demand smaller quantities of raw materials and often purchase them at higher prices from local markets.

Figure 4, estimated mean PI together with the 95% CI for each response category of LARM. Statistically significant one-way ANOVA result, Tukey's post-hoc test was conducted to identify the specific pairwise differences among the five LARM groups. The Tukey test identified the group pairs that differed significantly in PI at 5% significance level.

The raw material availability is not directly associated with business performance. Entrepreneurs who effectively manage supply chains, introduce innovation or creativity in their products, receive family support, and maintain strong market networks (both backward and forward linkages) tend to perform better in the market (Lipparini, 1994).

The consumption of raw materials depends on the primary income level and the size of the enterprise. Even entrepreneurs with low raw material consumption can generate higher income through product innovation and value addition. In the market, controlling oversupply and maintaining optimal production levels can help entrepreneurs achieve higher profits even with small investments. The challenge of raw material availability can be addressed through cooperative procurement systems, training in inventory management, and improved supply chain management practices (Giunipero, 2005). Income growth can also be achieved through capacity-building programs, innovation training, and improved market linkages.

Table 10: Mean and Standard Deviation (SD) on RT and PI of women led family based entrepreneurship						Table 11: One way ANOVA analysis on RT and PI of women led family based entrepreneurship			
	RT	N	Mean	SD	SE		F	df1	df2
PI(rs.)	SD1	14	30500.00	19361.94	5174.70	PI(rs.)	18.60	4	179
	D	34	42029.41	36264.38	6219.29				p
	U	28	14000.00	11375.74	2149.81				<.001
	A	29	16396.55	18132.64	3367.15				
	SA	79	17322.78	17045.95	1917.82				

Note: PI is primary income and RT is Risk tolerance & SD1 is Strongly disagree, D is Disagree, U is Undecided, A is Agree, SA is Strongly agree

Here, **partial η^2 (" η^2 or partial η^2 "), calculated from the F-value and degrees of freedom using:**

$\eta^2 = \frac{F \times df_1}{F \times df_1 + df_2}$ $\eta^2 = \frac{18.60 \times 4}{18.60 \times 4 + 179} = 0.094$
partial $\eta^2 = 0.294$, indicating a large effect of risk tolerance on primary income of WFBE.

Table 10, present the statistics of PI according to entrepreneurs RT. The highest mean PI observed among entrepreneurs risk tolerance. Here, highest mean among respondents who Disagreed (D) that high risk is important for business success (mean = 42,029.41). Before conducting one-way ANOVA, the assumption of normality and homogeneity of variances were done. Normality was assessed by using Q-Q plot, Shapiro-Wilk test, and homogeneity of variances was examined by using Levene's test. After checking these assumptions, the one-way ANOVA was done.

Table 11, represent that there was a statistically significant difference in PI among the five RT groups ($F = 18.60$, $p < 0.001$). So, the null hypothesis of equal mean PI across all RT groups was rejected, confirms that primary income differs significantly across different risk tolerance groups.

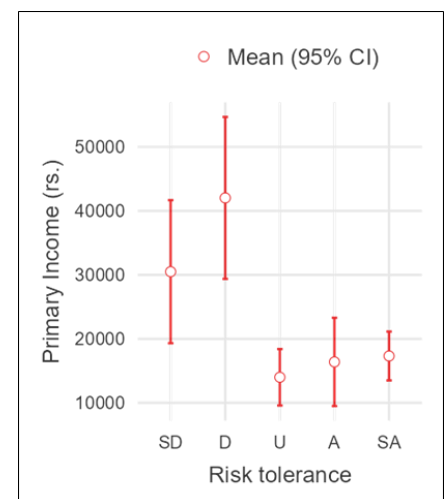


Figure 5: Post-hoc analysis Primary Income and Risk tolerance Note. * $p < .05$, ** $p < .01$, *** $p < .001$

It represent the risk tolerance is an important factor in business establishment. However, 34 women entrepreneurs expressed disagreement about taking higher risks to increase income, while 14 strongly disagreed. This indicates that many entrepreneurs in this region prefer low-risk business models with stable income. Low risk tolerance does not necessarily imply lower income. Since most entrepreneurs sell their products in local markets, stable demand allows them to maintain consistent income without taking excessive risks. Entrepreneurs who demonstrate higher risk tolerance are often younger individuals with less market experience, experimenting with new ventures in volatile market conditions without strong financial buffers (Ruhnka, 1991).

Figure 5 present the estimated mean PI together with 95% CI for each risk tolerance category. Here, Turkey test conducted to identify the specific pairwise differences among the RT groups. The Turkey test identified the group pairs that differed significantly in PI at 5% significant level.

It is identified that moderate or cautious risk-taking combined with stable business strategies may lead to more stable financial outcomes. This finding challenges the traditional assumption that higher risk always leads to higher income. While higher risk may generate higher profits, sustainable entrepreneurship with stable income-generating activities appears more beneficial for long-term enterprise survival (Carter, 2004). Thus, higher risk tolerance does not necessarily result in higher income for women-led family-based enterprises. Entrepreneurs who adopt lower-risk strategies often achieve stable income due to consistent customers, effective growth strategies, and long-term business experience. Balancing risk with strategic planning is therefore crucial for entrepreneurial success (Bolisani, 2017). Women entrepreneurs should receive proper guidance from family members and training institutions. Interestingly, some entrepreneurs who perceive themselves as risk-averse actually achieve higher earnings, indicating a paradox between perceived risk and financial outcomes.

Table 12: Mean and Standard Deviation (SD) on CO and PI of women led family based entrepreneurship

	CO	N	Mean	SD	SE
PI (rs.)	SD1	20	21250.00	11968.71	2676.28
	D	22	30318.18	20902.01	4456.32
	U	24	10875.00	7467.68	1524.33
	A	79	22860.76	28917.87	3253.51
	SA	39	23923.08	22714.34	3637.21

Table 13: One way ANOVA analysis on CO and PI of women led family based entrepreneurship

	F	df1	df2	p
PI (rs.)	5.76	4	179	< .001

Note: PI is primary income and CO is Cost of ownership & SD1 is Strongly disagree, D is Disagree, U is Undecided, A is Agree, SA is Strongly agree

Here, **partial η^2 (" η^2 or partial η^2 "), calculated from the F-value and degrees of freedom using:**

$$\eta^2 = \frac{F \times df_1}{F \times df_1 + df_2}$$

partial $\eta^2 = 0.114$, it is indicating moderate effects of cost of ownership on primary income of WFBE.

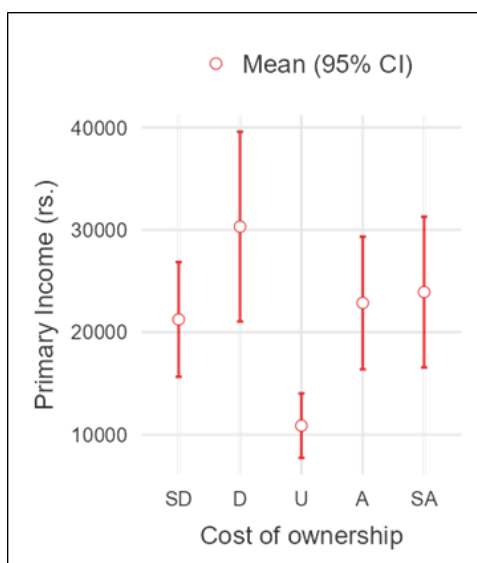


Figure 6: Post – hoc analysis Primary Income and Cost of Ownership Note. * $p < .05$, ** $p < .01$, * $p < .001$**

Figure 6, estimated mean PI together with the 95% CI for each response category of CO. Statistically significant one-way ANOVA result, Tukey's post-hoc test was conducted to identify the specific pairwise differences among the five CO groups. The Tukey test identified the group pairs that differed significantly in PI at 5% significance level.

Here, it is highlighted that perceptions of CO are closely linked to the socioeconomic condition and income levels of women entrepreneurs. Higher-income families experience fewer financial constraints, whereas lower-income families face greater financial burdens.

Entrepreneurs with better access to financial capital experience fewer challenges related to ownership costs, while families that remain undecided often lack financial literacy. Lower-income groups typically have limited access to credit, fewer income sources, and lower entrepreneurial confidence, creating a cycle of low-risk and low-income entrepreneurship (Adewumi, 2022). For crafts requiring higher startup investment, such as Kantha stitching or leather craft, the cost of ownership becomes a structural barrier for economically weaker entrepreneurs. Government support through low-interest financial schemes, grassroots entrepreneurship programs, and training in financial management and business planning could help address these challenges. Thus, cost of ownership reflects not only business challenges but also the deeper socioeconomic realities faced by women-led family-based entrepreneurs (Xuan, 2024).

Table 14: Mean and Standard Deviation (SD) on SI and PI (rs.) of women led family based entrepreneurship

	SI	N	Mean	SD	SE
PI (rs.)	SD	16	39375.00	25176.38	6294.09
	D	12	21500.00	20111.06	5805.56
	U	19	52578.95	43415.71	9960.25
	A	65	15984.62	11795.45	1463.05
	SA	72	16194.44	16163.90	1904.93

Note: PI is primary income and SI is Sustainability issue & SD1 is Strongly disagree, D is Disagree, U is Undecided, A is Agree, SA is Strongly agree

Table 15: One way ANOVA analysis on SI and PI of women led family based entrepreneurship

	F	df1	df2	p
PI(rs.)	33.16	4	179	<.001

Here, **partial η^2 (" η^2 or partial η^2 ")**, calculated from the F-value and degrees of freedom using:

$$\eta p^2 = \frac{F \times df_1}{F \times df_1 + df_2} \quad \eta p^2 = \frac{F \times df_1}{F \times df_1 + df_2} \quad \text{partial } \eta^2 = 0.426, \text{ indicating a large effect of sustainability issues on primary income of WFBE.}$$

Table 14 indicates that sustainability is a major concern for entrepreneurs. Before conducting one – way ANOVA, the assumption of normality and homogeneity of variances were done. Normality was assessed by using Q – Q plot, Shapiro – Wilk test, and homogeneity of variances was examine by using Levene's test. After checking this assumptions, the one – way ANOVA was done. Table 15 represent the statistically significant different in mean PI among all five SI groups ($F = 33.16$, $p < 0.001$). So, the null hypothesis of equal mean PI to all SI groups was rejected, indicating that perception regarding sustainability issues are significantly associated with differences in PI among WFBE. It shows that primary income varies significantly across different levels of sustainability challenges.

Among respondents, 19 were undecided, 16 strongly disagreed, and 72 strongly agreed that sustainability issues affect their businesses. Lower-income entrepreneurs are more strongly associated with sustainability challenges, indicating a negative relationship between sustainability issues and income (Jaikumar, 2025).

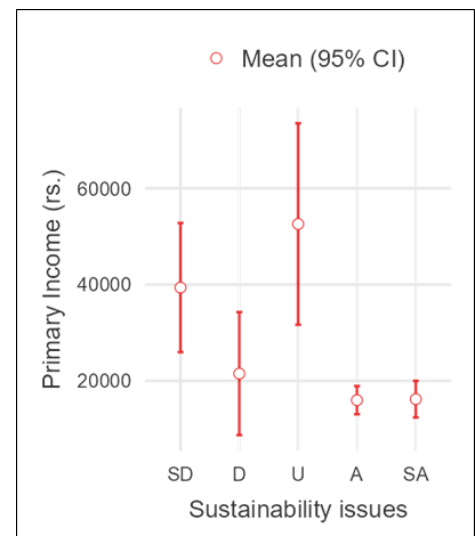


Figure 7: Post – hoc analysis Primary Income and Sustainability Issues Note. * $p < .05$, ** $p < .01$, * $p < .001$**

Figure 7, estimated mean PI together with the 95% CI for each response category of CO. Statistically significant one-way ANOVA result, Tukey's post-hoc test was conducted to identify the specific pairwise differences among the five SI groups. The Tukey test identified the group pairs that differed significantly in PI at 5% significance level.

So, sustainability challenges are negatively associated with primary income. Reducing sustainability barriers can therefore significantly improve income levels for women-led family-based entrepreneurs (Anim, 2025). Entrepreneurs who experience fewer sustainability challenges typically have better business planning, improved access to resources, and stronger adaptability to market environments (York, 2010). Thus, policy initiatives should focus on addressing sustainability barriers through capacity-building programs and long-term business support systems (Caldera, 2019).

4. Conclusion:

The one – way ANOVA results helps to identify that education of women helps to improve entrepreneurship and family support associated with improved entrepreneurial participation and socio – economic outcomes. Also, caste and primary income of WFBE continue to influence entrepreneurial opportunities as structural factors.

An important finding of this study is that Santiniketan *gharana* craft can also be adopted by illiterate women, enabling them to generate income and participate in entrepreneurial activities. This craft form is closely related to traditional nature-based art practices, and women who adopt this craft can earn a basic livelihood and support their families. In this way, the craft contributes to responsible consumption and production (SDG12).

The maximum utilization of local village resources through family-based enterprises, and the gradual spread of such enterprises within the community, helps rural households sustain their livelihoods. This process supports rural communities in meeting their basic needs while promoting the active participation of women in economic activities. Even in the contemporary global context, Santiniketan *gharana* craft has the potential to provide decent work and promote economic growth (SDG8). It also contributes to poverty reduction (SDG1) and gender equality (SDG5).

The findings further suggest that policymakers may strengthen women's education can significantly enhance entrepreneurial outcomes in women-led family-based enterprises. At the same time, financial constraints and long-term sustainability challenges are more critical concerns for these entrepreneurs. Therefore, to support and promote WFBE, it is essential to improve access of affordable finance, develop stronger market linkages, provide capacity-building programs, and enhance digital empowerment initiatives (Wanniarachchi, 2024).

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A Glance of a traditional attire among Tripuri, Reang, Jamatiya and Chakma Tribes of Tripura

Lipika Bala Chakraborty

Department of Textile Design, Govt. College of Art and Craft, Calcutta,
(under University of Calcutta), West-Bengal, India

Email: lipikabalachakraborty@gmail.com

Abstract:

Tripuri, Reang, Jamatiya, Chakma, and other tribal groups in Tripura have long practiced wearing Traditional Attire, a narrow, exquisitely woven fabric. With the exception of the Chakma, this traditional clothing is known as Risa or Risha among several tribal peoples, including the Tripuri, the Reang, and the Jamatiya. Chakma community called Hadi. They are known for their warmth, honesty, and simplicity. They hold a deep devotion to their nation. Tripura has a long tradition of making these traditional charming attires by the tribal women. This State has nineteen tribal communities; each community has different cultures. Their traditional cloth has unique design, motifs and colour. The restrained workmanship of the handlooms which is known as loin loom makes this unique art of weaving. Tribal people from all over the Tripura State were found with their extraordinary skills of weaving on loom. Each tribal community endow with their unique identity of their traditional attires. Even though there were differences in language, communication, traditions, and socio-cultural activities, among all these the basic need for tribal women is to know weaving their traditional attires on the loin loom. It became common across all Tribal communities of Tripura.

Keywords: Tribal People, Traditional attire, Weaving, Loin loom, Risa, Hadi, Uniqueness, Culture.

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1. Introduction

Tripura is a hilly and small state it is situated in the northeastern section of India with a lot of history, and its beauty is shown in a way that is unique and colorful, like traditional tribal attire. The North Eastern part of India has seven hilly states. It is in the farthest end of the country, and three-fourths of its border is with Bangladesh. Tripura has total nineteen tribal communities, *Deb Barman, (1983)*. The customary and traditional attire of the Tripuris resembles that of their *adivasi* counterparts residing in the state of Tripura. The distinction in vision pertains to color and design. The customary attire for women often comprises two pieces of unstitched fabric, *Debbarmen, (2006)*. The tribes of Tripura are categorized into ten major groups, including Tripuri, Reang and Chakma tribal communities. These groups are mostly made up of people of the same ethnicity; however, there are some differences in the languages or dialects spoken, *Dev Varman, (1986)*.

Tribal people are the indigenous people that originally inhabited India. Various names have been used to describe tribal societies, including primitive societies, pre-state societies, folk societies, and even simple societies. However, according to scientific research, the term 'race' has a completely different meaning from the word 'tribe', which is sometimes used as a synonym for the phrase 'race'. On the other hand, all of these words suggest that the tribal people are the most backward group in compared to other social groupings that are more sophisticated. On the other hand, sadly, there was no meaning of this word that was generally recognized. An anthropological idea is referred to as a tribe. In certain authors' writings, it is referred to as animistic or aboriginal. During the past few years, the name 'Adivasi' has been increasingly popular when used to refer to the tribe. The term "tribal" refers to a group of people who are considered to be semi-civilized and who live in hills, forests, or are considered to be particular groupings of agriculturalists. The term 'tribe' refers to a social group that is typically characterized by the presence of a dialect, cultural similarity, and a united social organization. tribes typically reside in a certain geographic region, *Das, et al. (2011)*.

Tripuri community is the biggest of the 19 tribal groups of Tripura. The Kok Borok language is spoken by the Tripuri and Reang people. The Austric family includes the Tibeto-Burmese subfamily, and this language is part of the Bodo group. *Deb Barman, (1983)*. In terms of population, the Tripuri tribal community is the largest in Tripura, *Dey, (2008)*. For numerous centuries, they governed the state. The Reang is the second largest tribe. Tripura comprises various ethnic groups, including Bangalee, Manipuri, Nepali, Oriya, Punjabi, Marwari, Behari, Malayali, and others, alongside the tribal population. The predominant group consists of Hindu Bangalees, encompassing Brahmins, Kshatriyas, Vaishyas, and Shudras, *Choudhury, (1983)*. Tribal communities are living simply and working hard, however fairs, festivals, rituals, traditions, beliefs, costumes, and food are all important parts of their culture. All households in the tribal villages were equipped with handlooms, which were used for both personal and commercial purposes. The vibrant and vivid colors are applied over contrasting backgrounds. People from all tribal groups have their own cultures and likes their attire and design. Risa and Rignai are the traditional dress

of Tripuri community. The womenfolk make these cloths on loin loom, which is available in every family of the tribal community, *Dev Varman, (1986)*.

The traditional clothes that tribal women wear are actually two pieces of unsewn clothing. The first is a narrow, short piece called "ria" that covers their breasts, and the second is a piece called "Pachra" that is half the length of a saree and is tied around their waist to cover the bottom part of their body. In the hills or in other rural areas, poor tribal women don't wear petticoats under their *pachras*. Women from different tribes, who live in cities and towns, wear this ethnic attire in a similar way. Instead of a Ria, they wear a long blouse with a bra underneath and another piece of cloth that they tuck under their waist on one side and cross over their breast on the other side to hang on their back like a "Pallu of saree." Today, they usually wear this attire to social events to keep their identities safe. Modernization has transformed their design tastes, affecting their lifestyles. Men and women used to make their own garments on looms. They lived simple, compassionate lives and wore basic attire. Unliterate, most couldn't read or write. Modern mill-made clothes have replaced them. The tribal people, especially those who live in cities, dress and live in the same way as their Bengali counterparts. The tribals of Tripura don't have a unique pattern or style in their clothes, just like the Assamee or the Manipuries. But most of the time, indigenous people appreciate the stripes of different colors and patterns on both their turbans and their *pachras*, *Bhowmick, (2001)*

Tripuri Tribal Community

'Tripuri' tribal community forms the majority of the entire population of tribal people in Tripura State. *Chakraborty, (2010)*. They are more dominant Community among all other tribal communities in Tripura. (*Deb Barman, 1983*). Tripuri women are very hard working. They are equally contributed to the work of cultivation along with their household works. They are basically depending on agriculture as a means of sustenance. In earlier time they used to cultivate in the jhum land only but now a days they have taken to cultivation in plain land also. Their culture is also very colourful and full of variety is there, *Chakraborty, (2010)*.

Tripuri women are usually use hand-woven fabrics, *Shashi, (2004)*.



Figure 1: Risha (half) of Tripuri Tribe



Figure 2: Motif's name -Malibar

This motif known as Malibar, which means Jasmine flower. Most of their traditional attires are adorned with floral motifs with stripes. The women of Tripura build their own loin-loom, which is well-known as the "Thanti" in their community. Among the Tripura banshis, women wove their own Riya and used them themselves, this was the rule, *Debbarmann, et al. (2005)*. Tripuri women make their traditional cloths on loin-loom. Risa and Rignai are very colourful, sometimes it persists intricate pattern of repetitive motifs of entire cloth, sometimes it seems the play of contrast colour warp and weft together. Risha is used to cover the upper portion of the female body and Rignai length, *Chakraborty, (2010)*. Risha is woven by Tripuri women with highly artistic variegated design. The Tripuri damsels were very expert in weaving and designing. Different types of motifs they

preferably adopted from nature and their surroundings, *Debbarmann, (2006)*. The textiles produced by the Tripuri Tribal community are of exceptional quality and are in high demand all over the world. One of the most important of their Traditional attire is Risha. The Risha is exported because to the exceptional design that it possesses. During the early period, the indigenous people of Tripura used indigenous dyes to dye their yarn. These dyes were derived from a variety of trees, barks, roots, leaves, and other natural materials. These dyes were used to make traditional clothing. At this moment, in order to save time, they are purchasing the yarn to weave. Insufficient time was spent on this dyeing process. Tripuris are in a significantly better position than female Tripuris. It is uncommon for women to find work in professions that are not related to agriculture. Women in the hamlet who are unable to or do not wish to engage in farming or work in agricultural or wage labor have turned to the production of whiskey for the purpose of selling it as their primary source of compensation.

Because it pays more than spinning and weaving, it is obvious that distilling liquor is one of the ways that women can contribute financially to their



Figure 3: Tripuri woman dressed in traditional attire

families. Brewing alcoholic beverages has, in many instances, taken the place of traditional household tasks performed by women of the Tripuri Tribe, such as weaving.

According to Somendra Chandra Debbarma (1933), virtually all of the jhumia families in Tripura possessed spinning wheels and loin looms, which were utilized by the women in the production of gorgeous garments. In the past, there was a real deal of knowledge of Tripura's Ria, *Chakravorty, (1999)*.

Reang Tribal Community



Figure 4: Striped Risha (half) of Reang Tribe

The 'Reang' is one of the biggest tribal groups in Tripura. The livelihood of this community based on Jhum cultivation, *Reang, (2009)*. There are some Reang people also in the Hill tracts of Chitagong in Bangladesh and in Mizoram, *Choudhury, (1983)*. Their language is Kak-barak, Kak means language and Barak means people. The people who use the language of the people are called Reang community. The people of this community identify themselves as Bru, *Reang, (2009)*.

History and culture of the Reang, who self-identify as Bru are different from other tribes of Tripura. The term 'bru' signifies 'man' in the Reang dialect. The Tipra designate them as Barak, signifying 'man', although the MikirsArleng, Garo, Achikmandi, and Lushais Mizo all employ virtually identical terms.

This exemplifies ethnocentrism, a characteristic prevalent among many individuals globally. A populace becomes cognizant of and grapples with their own culture due to this psychological phenomenon. They regard themselves as "men" and perceive others as inferior due to their excessive pride. This tribe is frequently designated by the word Reang. The significance of the word exceeds Reang's ordinary grasp. *Choudhury, (1983)*. Reang Girls and women are the only ones who are allowed to weave clothing, according to the textile industry.

Cotton, a spindle, a spinning machine, a bow, and a simple tension loom, which includes a sword, shuttle, back strap, shed stick, heddle, beams, posts, breast rods, and base rods, are all essential components for weaving. These ladies are skilled in the art of weaving a wide variety of garments, including Rinai, Risa, Basli, Pandri, Kutai, Rikatu, Baki, and Kamchai, *Shashi, (2004)*. In ancient times, Bru community was self-sufficient in the weaving industry and cotton industries, *Shashi, (2004)*. Cotton, a spindle, a spinning machine, a bow, and a basic tension loom with a sword, shuttle, back-strap, shed-stick, heddle, beams, posts, breast-rods, and lease-rods are the materials and tools required for weaving.



Figure 5: Motif's name -Kolkhu



Figure 6: Reang Tribal Women performed in their Traditional dance (Hozagiri) in traditional dress Risha (Source: Tripura State Tribal Museum)

The use of fibers may have preceded the weaving of clothing. In the field, cotton is grown. Cotton flowers are gathered, sun-dried and kept between October and November. Cotton was picked from the cotton bolls and the seeds were separated using a sieve, *Reang, (2009)*. The flowers are placed in a ginning machine to separate the cotton from the seeds after the shells and skins are removed whenever it is convenient. The device is made up of two wooden rollers that are horizontally inserted into two posts that are supported by a short but substantial wooden plank. A crank is used to gear the rollers in opposing directions. Cotton is carded using a bow and a striker after it has been ginned. The finely split bamboo used to make the bow tapers toward the ends, the split is bent, and a rope or skin is used to secure its two ends, *Choudhury, (1983)*.

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Figure 7: A Part of field survey, Author with Reang ladies. The pictures are clicked by a Chakma Male person during the visit to the Chakma Para, Birchandra Manu, Tripura

After pressing the cotton against the leg, it is shaped into several wicks so that it can be spun and dyed. There are mostly two colors: black from the Lela plant and scarlet from the Achu tree. After dyeing, the actual weaving starts. People do it with a loom that can be rolled up and moved from place to place without becoming too heavy or stuck. To weave, the wrap pieces are first placed lengthwise and then rolled around two parallel rods that are kept apart. A breast rod is one of the rods that is behind the weaver. A shuttle moves the weft element over and under each alternate thread. For shedding, the warp elements are separated into two sets that alternate. Each set is attached to a heddle. By pulling the heddles up and down, the shuttle has to move between them. A sword pushes the weave together. Women weave Rinai and Risa. Rinai is the name for women's clothing that goes around the waist. Sometimes it is pulled up to hide the breasts and waist. Risa is a long, narrow piece of cloth that is thickly woven and beautifully adorned. It is exclusively worn to cover the breasts Choudhury, (1983).

using a bow and a striker after it has been ginned. The finely split bamboo used to make the bow tapers toward the ends, the split is bent, and a rope or skin is used to secure its two ends, Choudhury, (1983).

Cotton was processed using a gin and kholtak. After drying, the process of phansaimasakam was carried out. The washed cotton is rolled into a roll, which is called a fansai. The fansai is used to spin yarn, thus producing white yarn. When the women of this tribal community weave Risha they need yarn of different colours. They dye these yarns themselves with the help of bark and leaves of different trees, Reang, (2009).



Figure 8: Reang girl making their attires on Loin Loom (Kathalia Village), West Tripura

Jamatiya Tribal Community



Figure 9: Jamatiya Risha (half)

The Jamatiya Tribal Community is the third most represented community in Tripura, based on the number of people, Bhowmik, (2003). There are 83,347 Jamatias in the State according to the 2011 census. The majority of them reside in Udaipur, Khowai, Amarapur, and some parts of the West Tripura district's Sadar Subdivision. They speak the Kokborok language and are thought to share a common ancestor with other Tibeto Burman tribes in the state.

Kailash Chandra Singha claims that they originated as a pure offshoot of the Tripuris. In the past, they served as Tripura's principal army. Thus, it is clear that throughout the early monarchs' rule, they were a significant warring tribe in Tripura. They received special benefits and were released from the Ghar Chukti, or house tax, as a result of their military service to the King. The Jamatias share similarities with the Tripuris both ethnologically and physically. Despite speaking the same Kokborok language as the Tripuris, Noatias, and Jamatias, the Jamatia pronounce words in a way that falls somewhere between that of the Tripuris and the Reangs. (Pradip Nath Bhattacharjee, 1995) Clothes and Accessories the Tripuris and other tribal groups' clothing and jewelry patterns are quite similar to those of the Jamatias. Debbarma, (2018). R. H. Sneyd Hutchinson's Chittagong Hill Tracts, Chapter IV, states once more that "this tribe is also called Tripura and is divided into two classes -the Purana or Tippera proper and the Jamatias." We can infer from this comment that the Jamatias are most likely a branch of the Tripuris. The author of Rajmala Kailash Singh claims that a portion of the Tripuri tribe in the royal army was acknowledged for its bravery. It is said that their successors have become well-known and changed into Jamatia.

Rajmala and the centennial edition of History of Tripura both support this view point. Four branches comprised the Tuipra or Tippera tribe: (1) Tippera, (2) Jamatia, (3) Noatia, and (4) Reang, in any case, it is clear that the Jamatias have inhabited Tripura since antiquity. The aforementioned analysis also leads us to conclude that the Jamatias are the result of a composite relationship

between the royal subjects or forces that make up Tripuri, Noatia, and Reang, *Chakraborty, (2010)*.

Jamatiya Women still weave their own cloths which they weave on their house, *Bhattacharjee, (1983)*. by Women's Clothes The best artistic designs can be found in the few pieces of art that remain in Tripura. T.H. Lewin states, "The dress of women (Tipperah) is unornate," in a piece written over a century ago. The short, just below-the-knee petticoat is made of extremely rough cotton fabric that they create themselves. It has blue and red stripes on it. The single girls use a brightly colored scarf with fringed edges to hide their breasts. The Jamatias employ homemade clothing, just as all other hill people. Nearly every man's home has a loom where a woman is always occupied during free time. 'Rignai' (Pachhra) is a robust, thick, and often black garment that ladies wear. It is two cubits long and one cubit and a quarter wide. The young hill women utilized Rea, a sturdy, multicolored fabric that was two cubits long and half a cubit wide, as breastcloths. All women from Tripura's tribes wear what are known as 'Rignai' and 'Rishas', albeit each tribe has a different color combination, *Jamatia. (2007)*.

The majority of Jamatiya women are skilled weavers, and they make their own clothing. They typically make the rinayborok, which is a piece of fabric that covers the lower half of the body from the waist down, as well as the riisa, which is a cover for the breasts. The Kanchwlwyborok, which is a traditional jacket, is worn by men when they are engaged in agricultural labor, *Shashi, (2004)*. The design of Risha (Rea), a breast ligament worn by the Jamatias and other Hill people, demonstrates the excellent craftsmanship of Tripura miniature; the lines and motifs are particularly beautiful and lyrical in the female figures that depict the delicate graces of womenfolk. Because the Rishas are designed for rites and customs in addition to covering and exhibition, the Jamatias have historically adhered to the canons of iconography. Intricate designs of stars, dots, stylized floral motifs, or the swastika are woven over a backdrop that is dark-blue-black and occasionally crimson. In the past, the Risha was so well-known that the late Dr. Sambhu Mukherjee, Minister Associate of the Royal King of Tripura, wore it as a turban during 19th-century royal ceremonies, *Jamatia, (2007.)*

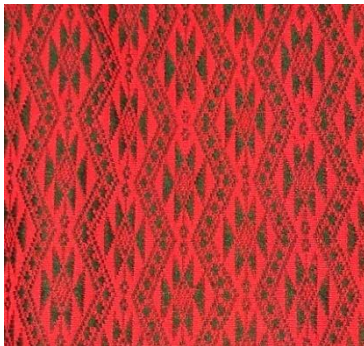


Figure 11: Motif's name - Bulsuk

Chakma Tribal Community

The 'Chakma' is one of another biggest tribal groups in Tripura. Chakma women build their own loin-loom, which is well-known as the 'Bain' in Chakma tribal community. All the parts of this back-strap loom and materials of making cloth called "Soch-Padar" and weaving known as "Bunokada". In ancient times, the main source of livelihood and survival for the Chakma communities was depends on Jhum cultivation and forest, *Chakma, (2009)*. The Chakma women are skilled weavers who utilize their own hand-woven fabrics. They are also skilled weavers. e.g. In order to cover their bodies and breasts, they make use of cloth. Both shirts and dhoties are worn by the men, *Shashi, (2004)*. Khadi / Hadi and Pinon is a traditional attire of Chakma Tribal community. Khadi is a breast cover and Pinon is a garment for covering the lower portion of the body. Chakma traditional weaving cloth makes the most of multi colours. Like other tribal communities' women in Tripura, the women of Chakma community also very expert and talented to make their traditional daily wear cloth and simultaneously the cloth for their rituals on loin-loom.



**Figure 10: A Part of Chakma Adi.
The picture is clicked by the author during the visit the of Chakma Para, Barchandra Manu, Tripura**



**Figure 12: A Part of field survey, Author holding a Hadi
The pictures are clicked by a Chakma Male person during the visit the Chakma Para, Barchandra Manu, Tripura**



Figure 13: Chakma woman dressed in traditional (The pictures are clicked by Author during the visit to the Chakma Para, Birchandra Manu, Tripura)

They normally do a lot of work to prepare the cloth, such as growing cotton on steep slopes through jhum agriculture (a slash-and-burn method of farming on hilly slopes) and spinning the cotton into yarn. The entire process likes, preparation of yarn, dyeing, and weaving are following a specific traditional method by the tribal women. The motifs are created using the extra weft technique. The colourful clothes of the Chakmas are woven with various types of flowers or designs. The designs are usually made with symbols of various plants, flowers, animal parts, animal footprints, clouds, water coils, etc. *Chakma*, (2009).

Objectives

- To investigate how Risha, traditional clothing, captivates a sense of identity and cultural continuity in modern environments.
- To look closely at the details of traditional weaving clothes and patterns.
- To look at the different traditional Risa or Hadi designs while they are wearing their traditional clothes.

Traditional dress (upper garment) of Tripuri, Reang, Jamatiya and Chakma Tribes of Tripura

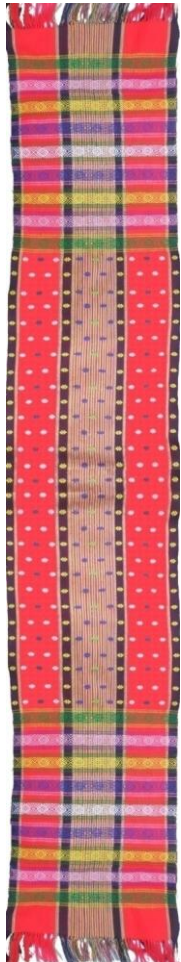


Figure 14: Risha (Tripuri Tribe). Motif name – LatakBubar (Flower in lower part and Butaisa all over)



Figure 15: Risha (Reang Tribe). Motif name – Stripes with Woyamul borde



Figure 16: Risha (Jamatiya Tribe). Motif name – Maitangsha



Figure 17: Hadi (Chakma Tribe). Motif name – Bulsuk

The image in Figure 14 is clicked by author during the visit of the author to Garia Hatai Women's Weavers Co-op Society Ltd. West Tripura. The image in Figure 15 is clicked by the author during the visit to Kathalia Village, Tripura, whereas the image in Figure 17 is clicked by the author during visit to ChakmaPara, Birchandra, Manu, Tripura.

Research Methodology:

The current study used descriptive research methods and extensive fieldwork to gather primary data. Secondary data came from a variety of sources, including museums, books, and journals. Various villages and clusters of Tripura are the center for making hand-woven traditional cloths, on loin-loom was chosen as the place to collect primary data. The collected data were carefully arranged and assessed in accordance with the study's objectives. I have been followed the two techniques to ascertain this research paper. Firstly, I studied the obtained data from museums, books, and journals and Secondly for Fieldwork, I visited the place where traditional cloths are woven on loin loom can be found and then to study and collect the details related to my topic. After collect various data I followed two different methods: Primary Source: By collecting and analyzing the important data from the books, Journal, Museum visit found in approx. 4-6 clusters of Tripura. Secondary Source: By collecting photographs and data from previously discussed topics related to this. According to need of the subject I had taken interviews, photographs, videos and collection of data to present my topic strongly. This Research Article has been prepared using Literature Review and Field Survey Methods.

Findings and Results:

According to the 1986-87 National Handloom Census, Tripura has 1,15,236 commercial and non-commercial weavers. At the time, 184 weavers' societies existed. People integrated weaving into their lives. The 2009-10 third Handloom census in India found 118,708 urban and rural Tripura households. 1,00,901 families weave on looms. The goods are for urban and home use. As of the 2010-11 Govt. of India census, Tripura has 1,37,177 handloom weavers, according to Handloom, Handicrafts & Sericulture. Different primary weaving cooperative societies developed clusters. There are 42 Clusters. They are in West Tripura, Sipahijala, Khowai, South Tripura, Gomati, Dhalai, North Tripura, and Unakoti. According to the 1997 National Handloom Counting Census, Tripura has 1,27,000 weavers, most of them are tribal women. Their rudimentary loin loom makes fabric. About 12,000 Bengalese weavers labor commercially, Dutta, (2001). So, there are different types of Census, one is National Handloom Census other is Handloom census in India and the another one is National Handloom Counting Census.

In the past, every Tribal family of Tripura possessed a spinning wheel and a loin loom for making their daily attire and also the beautiful and unique traditional attire such as Risha and Hadi, which are the upper garment of tribal women. This exquisite fabric was made by Tribal women using hand-spun yarns. Cleaning and spinning cotton yarn were also happening. However, to meet market demand and save time, they switched to mill-made yarn. Thus, this indigenous textile is nearly extinct. Today, few Tribal women make this cloth from hand-spun yarn. Thus, hand-spun yarn is gradually disappearing from loin loom weaving in their civilization. Today's educated Tribal women wear saris like Bengalis. The Tribal women making their attire's fabric on Loin Loom, which is also known as Back-strap Loom and It is very easy to carry. However, despite the fact that the various clusters have made efforts to preserve the traditional designs in even the most remote sections of the state, there are still fewer schools in these areas. There is a wide variety of initiatives that can assist weavers in improving their skills. While the production of their traditional fabrics on their traditional loin loom requires a significant amount of time, the cloth that is produced from cotton yarn that has been hand-spun is truly stunning. It provided the fabric with a texture that had a reassuring feel to it.

There is no financial compensation or expression of gratitude given to the indigenous people who are responsible for the production of these garments, which require a great deal of labor and an artistic touch. Therefore, they wish to improve their skills and acquire new knowledge in order to save time and purchase a new loom rather than the one they already have. The world is changing because of more industrialization and the growth of modern technologies at the same time. People who live in the hilly and rural parts of Tripura are less developed than people who live in the metropolitan parts of the state. The modern Tripuri people are used to the modern style of life and the modern standard of living. In this state, there are still a lot of groups in Tripura that make handloom items. But only a few of these groups make traditional tribal handloom textiles, which are manufactured by tribal people. The weavers are not satisfied with weaving their traditional fabric on a loin loom because the socio-economic situation is changing. And for that, different Clusters can help the artist-weavers improve their social and economic situations. The clusters concept will assist make a wider range of items. So, with the support of several government projects, we may still rebuild previous designs. This will help us keep the most important designs from the past and document them. To meet changing market demands, new designs and infrastructure need to be built.

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From Pandora to Jaipur: Cultural Displacement, Traditional Art, and Social Work Interventions for Sustaining Blue Pottery Artisans in Kot Jewar

*Manisha Swami¹ & Pragya Sharma²

¹Research Scholar, IIS (Deemed to be University)]

Address: 1/H/55, Indira Gandhi Nagar, Jagatpura, Jaipur, 302017

*Corresponding Author, Email – mswami976@gmail.com

²Assistant Professor-Selection Grade, IIS (Deemed to be University)]

Abstract:

Background: Traditional artisan communities across the world are increasingly vulnerable to cultural erosion due to globalisation, industrial production, and shifting development priorities. The film *Avatar* (2009) presents a fictional yet compelling narrative of indigenous displacement, cultural destruction, and resistance against exploitative forces.

Methods: This paper draws a comparative analysis between the themes depicted in *Avatar movie* and the lived realities of Blue Pottery artisans in Kot Jewar, Jaipur (Rajasthan). While the artisans are not physically displaced in the manner portrayed in the film, they experience economic, cultural, and symbolic displacement that threatens the continuity of their traditional craft. Anchored in cultural sustainability theory and a social justice-oriented social work framework, this study explores how declining patronage, market competition, policy neglect, and generational discontinuity contribute to the diminishing practice of Blue Pottery.

Results: The paper proposes comprehensive social work interventions aimed at cultural preservation, livelihood sustainability, policy advocacy, and community empowerment to address the challenges faced by traditional artisan communities.

Conclusion: Taking a conceptual and analytical parallel between the *Avatar movie* and the socio-cultural dimensions and problems faced by the Blue Pottery artisans, the paper brings about a social work lens to highlight the need for culturally sensitive interventions beyond welfare-based reactions. Still, it focuses on addressing the structural inequalities, market exclusions, and power imbalances that underlie the artisan marginalisation.

Significance: The study highlights the significance of interdisciplinary practices in the preservation of intangible cultural heritage, as well as ensuring that artisans enjoy dignified and sustainable livelihoods by understanding the *Avatar movie* as a symbolic means of expressing cultural resistance.

Keywords: Avatar movie (2009), Blue Pottery, Cultural displacement, Cultural sustainability, Social work interventions, Traditional art preservation.

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1. Introduction

Traditional art forms possess cultural memory of the society. They reflect the history, imagination and identity of communities that have lived and raised them over generations. The artisan communities in India have a significant history of preserving and transmitting these traditions, continuing to practice, impart, and transmit skills, techniques and narratives that have been a significant part of the cultural heritage of India. Nevertheless, the case of several traditional crafts has changed in the contemporary era. The economic environment in which artisans work has been changed by processes of globalisation, industrialization and market-oriented development. Consequently, most crafts are slowly disappearing, not due to any lack of cultural significance, but because of scaling back of institutions, demise of markets, and growing financial pressures that make it difficult to sustain their livelihoods.

Jaipur's Blue Pottery is a wonderful example of ecologically friendly art. In contrast to traditional ceramics, it uses a mixture of quartz powder, glass, Multani Mitti, and natural binding agents rather than clay that is taken from fertile land for farming, because of this, some academics believe that it would be more accurate to categorize it as a ceramic rather than traditional pottery. This protects agricultural resources and lessens soil depletion. Additionally, the use of natural dyes and pigments derived from minerals reduces chemical pollution, making the craft environmentally friendly. Blue Pottery closely correlates with sustainable production principles and the objectives of ecologically responsible development in the current circumstances of resource scarcity and climate change. Its ecological worth is still underrated in market narratives and regulatory frameworks, despite these benefits.

Blue Pottery is acknowledged as a part of the pottery heritage in this study, which takes a broader socio-cultural definition of pottery. It simultaneously recognizes its material uniqueness, presenting it as a hybrid craft that defies strict disciplinary categorizations. This dual viewpoint respects variations in technology while enabling a more inclusive understanding of traditional crafts.

Blue Pottery's market visibility can be improved and sustainable livelihoods can be promoted by recognizing it as a "green craft." From the standpoint of social work, this opens doors for campaigning, raising awareness, and incorporating traditional knowledge systems into the discussion about sustainable development.

The livelihoods of Kot Jewar's Blue Pottery artisans were severely disrupted by the COVID-19 pandemic. The collapse in market demand brought on by lockdowns, the closure of local and export markets, and tourism shutdowns was one of the most direct effects. Due to Blue Pottery's heavy reliance on tourism and exhibitions, the revenue of artisans drastically decreased, which resulted in debt and unstable finances. Manufacturing was further halted by supply chain interruptions that impacted the availability of raw materials like quartz, glass powder, and binding agents. Many artisans were compelled to stop working and change to other low-paying jobs. Their vulnerability was increased by the lack of sufficient social security systems and restricted access to government assistance programs. Particularly, women artisans had to deal with more difficulties as a result of unpaid assistance and less earning options.

The pandemic also revealed persistent inequalities in artisan communities, such as reliance on intermediaries, lack of funds, and informal employment situations. These difficulties show how precarious traditional craft-based livelihoods are and how essential institutional assistance, access to digital markets, and sustainable income diversification techniques are needed.

Cinema has frequently been used as a means to effectively express these broader social concerns. The *movie Avatar* (2009) by James Cameron is commonly regarded as a movie-criticism of colonialism, the ecological crisis and the displacement of indigenous cultures. The narrative revolves around the Na'vi, an indigenous community whose spiritual, cultural, and economic existence is inseparable from their land. Their forced displacement by a technologically advanced corporation seeking to extract valuable resources mirrors historical and contemporary patterns of exploitation faced by marginalised communities worldwide (Fritz, 2012). Movies like *Avatar* (2009) have the potential to significantly increase public understanding of contemporary social and cultural issues. Cinema has the ability to transform difficult socio-political situations into strong narratives that appeal to viewers all around the world. The struggles of the Na'vi community are used in *Avatar* to illustrate themes of cultural erasure, ecological exploitation, and displacement, making complex issues more real and powerful. These stories can inspire viewers to think critically about similar real-world trends, such as the marginalization of artisan and indigenous communities. While movies may dramatize and reality, they are important tools for advocating and raising awareness. analogies from *Avatar* can attract attention to issues of cultural relocation, market exploitation, and the decline of traditional livelihoods in the context of Blue Pottery artisans, thereby bolstering scholarly arguments and policy discourse.

Blue Pottery art is an art form that has been adopted from the Mughals and, with time, transformed to be an integral part of Jaipur's heritage and culture. Blue Pottery art has been exclusively practised in Jaipur since 1990, precisely in Kot Jewar village, which is approximately 45 km away from Jaipur city. Mr. Ramnarayan Ji Prajapat, with his brother, pioneered Blue Pottery in this Village and became master artisans. They made sure people of the village learn this beautiful fading art to earn a livelihood and also save Jaipur's heritage and rich culture. Blue Pottery is also conferred with a Geographical Indication (GI) tag, the geographical indications of Goods (Registration and Protection) Act 1999 (the Act), provide for registration of handicrafts & handlooms as Geographical Indications (GI). Handicraft (& Handlooms) is covered under Section 2(f) of the Act, which states that "goods" means any agricultural, natural or manufactured goods or any goods of handicraft (& Handlooms) or of industry and includes food stuff. Handicraft artisans & weavers can be registered as Authorised Users for the registered Geographical Indications as provided under Section 7(3), read with Section 17 of the Act. The Act provides that any person claiming to be the producer of the goods in respect of which a geographical indication has been registered under section 6 may apply in writing to the Registrar in the prescribed manner for registering him as an authorised user of such geographical indication" (Swami & Sharma, 2025). Blue Pottery is a traditional art form of Jaipur that has been practiced for over a century. The craft, with its characteristic blue colour and elaborate designs, remains labour-intensive and more or less reliant on the traditional forms of production.

These instances show how dominant economic systems can weaken livelihood security, interfere with community sovereignty, and threaten traditional knowledge systems. Therefore, this study employs *Avatar* as a heuristic tool to highlight patterns of cultural vulnerability, resistance, and the need for rights-based remedies rather than equating the two. Without exaggerating the connection, this subtle framing reinforces the theoretical foundation.

1.1 Procedure for Making Blue Pottery

The Blue Pottery process consists of four major steps, all involving specific skills and careful handling. These are the stages of pottery making, design and painting, glazing and firing.

1.2 Pottery Making



Figure 1: mixing and creating dough

The lack of traditional clay in Blue Pottery's composition is a key characteristic. Rather, an essential part is *Multani Mitti* (Fuller's earth). As a natural binding and plasticizing agent, *multani mitti* gives the mixture the necessary functionality while preserving its environmentally beneficial qualities. Its application reduces dependency on agricultural land and enhances the craft's sustainability. *Sajji*, a kind of sodium carbonate, is another essential ingredient. As a fluxing ingredient in the mixture, *sajji* ensures that the materials fuse properly and lowers the melting temperature during firing. Also, it enhances the finished product's smooth texture and structural strength. These components work together to define Blue Pottery's unique, non-clay-based composition.

Multani mitti (fuller earth), *katira gond* (gum derived from banyan tree), powdered quartz stone available in Beawar and *sajji*, glass, feldspar and water are combined and mixed thoroughly into a smooth dough. This is mixed and pounded to bring it to the same consistency, but it is then pressed into pre-baked clay moulds. To ensure that the article maintains its shape during drying, dry ash is pressed into the hollow areas of the mould. After the piece is dry, the ash is then washed out.

Once the initial shaping is done, the semi-dried product is placed upon a potter's wheel, and



Figure 4: After sun dry, smoothening the surface to paint

the surface is refined by means of sandpaper in order to achieve a smooth surface. It is then dipped in a thin mixture of water and dough to block surface pores and allowed to dry. This process of coating and smoothing is repeated to provide strength and finish. After this, the article is dipped into a slurry consisting of water, powdered glass, quartz powder and *maida* (fine edible flour), and forms the base coating. The coated piece is allowed to dry completely before moving to the next stage.



Figure 2: Making mould

1.3 Designing and Painting



Figure 5: Designing and painting

After sufficient smoothing and coating on the surface, decorative work starts. Preconceived morphemes are initially sketched with a fine brush of squirrel hair to enable accuracy and fluidity in the composition. After outlining, colours are carefully filled within the motifs. The pigments are prepared with mineral sources: cobalt oxide creates the hues of blue, copper oxide creates turquoise tones, iron oxide creates red hues, chromium oxide creates green hues, and cadmium oxide creates yellow hues. The painting phase is very crafty since the colours used seem different before firing, and experience can be necessary to ascertain the end result.



Figure 3: Designing and painting

1.4 Glazing

Once the decorative painting is complete, a transparent glaze is applied over the surface. Powdered glass, lead oxide (vermillion) and borax are used to prepare the glaze. To prepare glaze, these are initially melted in a furnace, allowed to cool, crushed into a fine powder and combined with water and *maida* to create a liquid glaze. They are painted with this mixture evenly over the articles and allowed to dry before being fired.



Figure 6: Glazing

1.5 Firing

The glazed products are put in a kiln and subjected to a temperature of between 800 and 1000 degrees Celsius. When fired, the glaze melts and becomes fused to the surface to create the typical glossy look of Blue Pottery. Colour changes are also visible during the firing process: cobalt oxide changes from light purple to deep blue, copper oxide changes from brown to turquoise blue, whereas the colour effect on yellow, red, and green remains largely the same. The firing process takes approximately six to eight hours. The kiln is then left to cool gradually over a period of three days, and the end products are removed. Traditionally, Blue Pottery is a seasonal art form, and it is discontinued during the monsoon months because of the high humidity, which affects drying and firing. After the monsoon, some ancient production is renewed, notably during the period of Ganesh Chaturthi. Recent modern practice of Blue Pottery mainly owes its modernisation to the efforts of Shri Kripal Singh Ji Shekhawat, whose experiments with forms, shades and broadening of colour ranges brought the tones of green, red and yellow into the tradition. Despite the troubled past, years on, Blue Pottery continues to be a representation of centuries of art, cultural resilience, and craftsmanship.



Figure 7: Firing process in the kiln

In spite of the fact that the setting and time of the Avatar film are fictitious, the subject discussed can be applied to real-life experiences of the traditional artisan community in India. The artisans of the Blue Pottery in Kot Jewar Village represent a community that has been displaced not physically but in terms of culture and economic factors. With mass-produced ceramics flooding the market and young generations rejecting traditional ways of earning a living, Blue Pottery, a craft that used to be a hallmark of royal patronage and cultural pride, gradually declined.

2. Theoretical Perspectives

Cultural sustainability theory, as articulated by Throsby (2001, 2010), insists on culture as a type of capital that should be maintained with economic and social development. This theory will be used in the present study to understand Blue Pottery as a living cultural practice that is in decline as a symbol of cultural displacement. It is also similar to the situation in the Na'vi culture, in the movie *Avatar*, where the tradition that is carried is vital to the survival of the community.

Social Justice and Rights-Based Approach by John Rawls (1971) – *Theory of Justice* The rights-based approach, based on the concept of justice developed by Rawls and subsequently developed by the international human rights frameworks, considers inequality to be structurally created and amenable to change through institutional responsibility. This study provides an understanding for institutional intervention and policy-making by interpreting the dispossession of the Na'vi in *Avatar* and the marginalization of Blue Pottery artisans as a violation of cultural and livelihood rights.

Empowerment Theory by Julian Rappaport (1987) & Zimmerman, M. A. (2000) Rappaport conceptualised empowerment as a process by which people and communities acquire control of their lives and environments. Zimmerman subsequently codified the aspects of empowerment at the psychological, organizational, and community levels. The study is based on this theory, which focuses on collective action, artisan cooperatives, leadership development, and participatory decision-making, similar to the collective resistance in the *Avatar* movie.

3. Review of Literature

The literature available on the movie *Avatar* (2009) develops the film as a multi-layered cultural text, questioning the issue of environmental degradation, colonial domination and capitalist exploitation using cinematic metaphor. Psychologically, Hwang and Cho (2021) describe why the film has been popular across the world by illustrating how the audience has a positive response to the scenery in Pandora, which enhances natural patterns of symmetry and fractals, thus triggering evolutionary aesthetics via processing fluency and peak shift effect. Beyond visual psychology, several scholars interpret *Avatar* movie as a critique of colonial expansion and indigenous dispossession. Fritz (2012) posits that the movie replicates the “ecological indigenous community” trope where capitalism is associated with extracting resources. In contrast, Wicaksono, Ginting, and Sunardi (2023) emphasize that *Avatar* movie reveals the neo-colonial pain of viewing resource extraction as a destructive act toward native cultures and ecosystems. Philosophical remarks go even further in this critique: Fu and Ma (2023) start the conceptualization of the *Avatar* movie series as promoting a “community of life” worldview where anthropocentrism is contested, and Sharma, Lamsal, and Pokharel (2024) conceptualize the film as a means of developing ecological citizenship

based on ethical responsibility and environmental stewardship. From a political-economic perspective, Tang (2011) presents *Avatar movie* as a Marxist allegory of class struggle, imperialism, and resistance, noting its symbolic adoption by marginalised groups facing displacement and exploitation across the Global South.

While this review of literature largely centres on indigenous land-based displacement and environmental ethics, its conceptual insights are highly relevant to understanding the cultural and economic marginalisation of traditional artisan communities, particularly the Blue Pottery artisans. Blue Pottery, known by its unique body made of quartz and cobalt-blue glaze, is an important element of the Indian intangible cultural heritage (Menon, 2011; Bordia, 2014). The craft has historically been maintained by the patronage of the royalty and subsequently by industrial art revival movements, including that of Kamaladevi Chattopadhyay (Dhamija, 2008), and it represents a combination of aesthetic, technological and cultural wisdom. Innovations like high-strength, lead-free Blue Pottery, which are described as innovations, are used by technological studies to show that the craft has an adaptive potential. Nevertheless, modern interpretation shows that despite cultural appreciation, Blue Pottery is experiencing drastic destruction due to competition in the market, an increase in production expenses, and a reduction in the involvement of artisans (Business Standard, 2018). Similar to the Na'vi in the *Avatar movie*, the Blue Pottery craftsmen are subjected to some displacement, but not due to physical expulsion, but due to economic marginalization and loss of cultural space, in which the neoliberal market ideas erode the traditional systems of livelihood and knowledge. Accordingly, the ecological, anti-capitalist and resistance-focused paradigms utilized in the film scholarship of *Avatar* offer an effective perspective through which the crisis experienced by the Blue Pottery artisans can be viewed, and the necessity to implement culturally sensitive social work interventions that can protect traditional art forms and artisan livelihood.

4. Research Methodology

The current research adopts a qualitative, exploratory and analytical research design that involves a case study approach. The study based in Kot Jewar village, Jaipur district, which constituted the research area as well as the universe in which research was conducted, due to its distinct concentration of Blue Pottery artisans. The artisans included in the study consisted of artisans who are involved exclusively in Blue Pottery art and their involvement engaged those in various stages of production. The study is directed by an integrated framework that combines the following to increase analytical rigor: The Sustainable Livelihoods Framework (SLF) is used to assess livelihood risks and access to resources (human, social, financial, natural, and physical). Examine market systems, power dynamics, and the function of intermediaries from a political economy perspective. Thematic analysis is used to examine primary data (interviews, case studies, field observations) to find recurrent patterns including market dependency, income insecurity, and adaptive tactics. Contextual interpretation is supported by secondary evidence, such as current literature. This design is suitable because the study aims at explaining the metaphorical applicability of the film *Avatar movie* (2009) within the socio-cultural context of the challenges that the Blue Pottery artisans are experiencing.

5. Objectives of the Study

The specific objectives of this study are:

1. To analyse the themes of displacement, cultural erosion, and resistance in *Avatar movie* (2009).
2. To examine the historical significance and contemporary challenges of Blue Pottery artisans in Kot Jewar Village.
3. To draw comparative parallels between fictional indigenous displacement and real-world cultural marginalisation of artisans.
4. To propose social work interventions aimed at preserving traditional art practices and strengthening artisan livelihoods.

5.1 Sources of Data

The study relies on both primary and secondary sources. Primary source includes a Case Study -The case of Blue Pottery artisans of Kot Jewar village, Jaipur. Secondary sources include peer-reviewed journal articles, Books on Indian handicrafts, artisan livelihoods, and cultural heritage and newspaper articles documenting the decline and challenges of Blue Pottery artisans.

6. Results and discussion

Comparative analysis of *Avatar movie* (2009) and lived realities of Blue Pottery artisans demonstrates shocking similarities in the nature and effects of displacement, cultural degradation, and continuity struggles. In *Avatar movie*, the forced displacement of the Na'vi people in their traditional land by influential foreign actors with extractive interests leads to a direct challenge of their cultural identity and spirituality. Conversely, Blue Pottery craftsmen confront a less obvious but equally detrimental kind of displacement, one that is less territorial than cultural and economic, and as a result of the forces of the market, inadequacy in the institutional support, and the pressures of modernization. Although the lifestyle of the Na'vi is threatened by means of physical displacement and destruction of the environment, artisans face the slow loss of traditional craft production techniques,

poorer intergenerational sharing of knowledge and skills, and less cultural appreciation of hand-made work. In both situations, resistance is organised in terms of collective action, where the Na'vi organise their community and cultural defence against their land and identity, and Blue Pottery artisans organise themselves in craft cooperatives, skill training, technological adaptation, and cultural advocacy to sustain their livelihoods. Resource loss is another interconnected point between the two stories, with the exploitative nature of extraction in the *Avatar* movie destroying the ecosystem, and the artisans involved struggling with scarcity of traditional raw materials and economic resources. Lastly, the two examples highlight the vulnerability of cultural identity and continuity, and the sustainability of indigenous culture in the *Avatar* film and the continuity of Blue Pottery traditions in both cases is dependent on the long-term preservation measures of protection, empowerment, and cultural preservation.

Table 1: Comparative analysis

Aspect	Avatar movie (2009)	Blue Pottery Artisans
Displacement	Forced displacement from ancestral land by powerful external forces	Cultural and economic displacement due to market forces, lack of support, and modernisation pressures
Cultural Erosion	Threat to Na'vi way of life and spiritual practice	Decline in practice, transmission, and valuation of traditional craft
Resistance	Na'vi resist through unity and cultural defence	Artisans employ craft cooperatives, training, and cultural advocacy
Resource Loss	Exploitative extraction of resources threatens ecosystem	Scarcity of traditional raw materials and lack of economic resources
Identity & Continuity	Cultural survival at stake	Risk of craft traditions fading without preservation efforts

6.1 Social Work interventions

- **Market Linkage Interventions:** To lessen reliance on middlemen, create direct marketing channels via regional cooperatives and online platforms.
- **Cluster-Based Development:** By establishing shared production, storage, and training facilities, Kot Jewar's artisan clusters will be strengthened.
- **Skill Diversification:** To align products with modern market demands while maintaining traditional aesthetics, implement design innovation workshops in partnership with organizations like the National Institute of Design.
- **Financial Inclusion:** Make it easier for informal workers to access government assistance programs, insurance, and microcredit.
- **Eco-Branding and Certification:** Increase the market value of Blue Pottery by promoting it as a sustainable craft through eco-labeling and Geographical Indication (GI) awareness.
- **Gender-Sensitive Interventions:** Through income recognition and home-based work support systems, acknowledge and promote the contribution of women artisans.
- **Alternative Livelihood Support (Mushroom cultivation):** Since climate conditions usually cause Blue Pottery production to stop during the rainy season, encouraging mushroom cultivation as a supplemental livelihood can offer a sustainable source of income. Mushroom cultivation is a viable option for artisan households because it can be done indoors, takes little space, and requires relatively low expenditure. Development organizations and social workers can connect producers to local marketplaces, offer training, and provide initial supplies. This diversification approach improves livelihood resilience and lowers economic vulnerability in addition to guaranteeing income continuity during seasonal disturbances.

6.2 Role of Social Workers

Social workers could intervene in traditional artisan communities by designing multi-layered and culturally sensitive interventions to empower their communities. The ways of participation in the recording of craft practices, design patterns and oral histories are one of these strategies as they ensure that the traditional knowledge systems can be preserved, valued, and transmitted through generations. Economically, social workers might help form artisan cooperatives, entrepreneurship and digital marketing training, and artisan inclusion in government livelihood missions to enhance income security and access to the market. By acting as representatives between the artisan communities and the policy institutions, social workers can also participate in advocacy to secure subsidies, support based on raw materials, inclusion in social security schemes and formal recognition of traditional crafts as intangible cultural heritage. Additionally, such interventions as the implementation of craft-based curricula in schools, designing apprenticeship and mentorship programs and scholarships to young craftsmen can contribute to intergenerational sustainability and cultural pride. Finally, promoting craft villages, expos, and any other types of experiential tourism would boost the earnings of the artisans and make more people appreciate traditional forms of art or at least in terms of cultural sustainability and livelihood resilience.

7. Conclusion

This article demonstrates that the movie, *Avatar* (2009), can be used as an extremely powerful metaphor to understand contemporary forms of cultural and economic displacement outside of the native land-based environment. Through the comparative analysis with the daily lives of the Blue Pottery artisans, we realize that the traditional craft communities have been marginalised by the commercialised forces, the disappearance of institutional and cultural space, rather than being driven out through physical means. Being based on cultural sustainability, political economy, and ecological perspectives on the world, the analysis reveals some horrible parallels between extractive relations as portrayed in the *Avatar* movie and the neoliberal realities that are threatening the existence of the old artisan livelihoods and knowledge systems.

The economic system in which traditional artisans work has been profoundly altered by globalization. On the one hand, it has made traditional crafts more visible and given them new markets. However, it has increased competition from more affordable and widely accessible mass-produced, machine-made goods. As a result, handmade goods have lost value and artisan's income stability has decreased. Also, customer preferences have changed as a result of globalization, often selecting contemporary designs over conventional aesthetics. Economic exploitation and cultural dilution have resulted from the growing influence of middlemen and market-driven production, which has also diminished traditional artisan's control over pricing and creative processes. Several types of feasible measures are required to safeguard traditional artisan communities. Governments should guarantee credit availability, strengthen social security programs for artists, and offer targeted financial assistance. Investing in e-commerce platforms, digital literacy, and skill development can give artisans direct access to larger markets. By encouraging ethical purchase, supporting handcrafted goods, and acknowledging the cultural and ecological significance of traditional crafts, society also contributes. To guarantee sustainable livelihoods and cultural preservation, cooperation between governmental organizations, non-governmental organizations, and local institutions is crucial.

The fact that the cinematic stories of cultural resistance can be extended to the setting of artisanal communities gives the research work an interdisciplinary theme, which justifies the contribution of social work in the augmentation of cultural justice, sustaining an intangible heritage and guiding dignified livelihoods within an increasingly globalised economy.

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Terracotta Pottery Practices of Panchmura, West Bengal: Materials, Processes, and Indigenous Firing Techniques

Arman Ovla*

IDC School of Design, Indian Institute of Technology Bombay (IIT Bombay)

Formerly associated with the School of Design, Art & Performance, FLAME University, Pune, India

*E-mail: ovlaarman@gmail.com

Abstract:

Panchmura, a village in the Bankura district of West Bengal, is a significant terracotta pottery cluster known for its votive sculptures and utilitarian wares. Despite growing scholarly attention, detailed studies on indigenous material processes and firing technologies at the cluster level remain limited. This study adopts a practice-led and ethnographic approach, combining field observation, informal interviews, and visual documentation to examine clay preparation, forming techniques, surface treatments, and firing practices in Panchmura. The findings reveal a highly developed indigenous knowledge system reflected in material selection, tempering methods, slip application, and kiln operation. The use of oxidation, reduction, and open saggar firing within a single traditional kiln demonstrates technical adaptability and resource efficiency. Gendered labour roles contribute significantly to continuity and knowledge transmission. The study highlights Panchmura pottery as a resilient craft system in which cultural practices and technical knowledge are closely intertwined. It emphasizes the relevance of indigenous ceramic technologies for sustainability, craft preservation, and contemporary design discourse.

Keywords: Panchmura terracotta, Indigenous pottery, Firing techniques, Craft sustainability, Votive ceramics, West Bengal.

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1. Introduction

Panchmura is home to more than 80 families of terracotta artisans, locally known as “Kumbhakar,” meaning potter in Bengali. Terracotta production is a family-based occupation in which all members participate. As in many traditional pottery clusters, knowledge is transmitted through generations rather than formal training. Men typically work as primary potters, while women contribute to clay preparation, decoration, coloring, firing, and selling.

The history of this tradition can be traced back to the Mallabhum kingdom between the 7th and 16th centuries. The Malla kings of Bishnupur patronized terracotta temple construction, commissioning artisans to create sculptural representations of deities, mythological narratives, and local cultural forms (Gangopadhyay, 2019; Ghosh, 2014; Satpathi, 2011; Shaw, 2011). The availability of high-quality clay and the long-term settlement of potters established Panchmura as a major center for terracotta production. Potters work throughout the year except during the month of Baisakh (April–May), when it is believed that Lord Shiva manifests through the pottery wheel (Satpathi, 2011).

Potters produce a wide range of items, including clay conch shells, tiles, water pots, incense holders, decorative objects, and votive sculptures. The most recognizable form is the terracotta horse, characterized by its elongated neck and elaborate surface decoration. Other votive forms include representations of animals, ritual objects, and Manasa jars (Manasa chali). Panchmura gained institutional attention in 1970–71 with the establishment of a government training center, though it was short-lived. In 2006, the Panchmura Potters’ Society was formed by the artisans to support their craft practices (Satpathi, 2011).

1.1 Research Gap

While previous studies on Panchmura and other terracotta clusters in West Bengal have focused primarily on historical context, iconography, and product typologies, there is limited process-oriented research examining indigenous material knowledge and firing technologies from a practice-led perspective. Furthermore, the relationship between these technical practices, sustainability, and socio-cultural organization remains underexplored. This study addresses this gap by focusing on material processes, kiln practices, and experiential knowledge embedded in everyday pottery production.

1.2 Research Questions

This study is guided by the following research questions:

1. What material preparation, forming, surface treatment, and firing techniques characterize the terracotta pottery practices of Panchmura?
2. How do indigenous firing methods—oxidation, reduction, and open saggar—function within a single traditional kiln system?
3. What role do socio-cultural beliefs and gendered labour practices play in sustaining pottery production in Panchmura?

4. How do these traditional practices contribute to the sustainability and resilience of the Panchmura pottery cluster?

1.3 Aim of the Study

The aim of this study is to document and analyze the material practices, firing technologies, and socio-cultural dimensions of terracotta pottery in Panchmura, West Bengal. It seeks to understand how indigenous knowledge systems support the sustainability and continuity of this traditional craft.

2. Materials and Methods

This study adopts a qualitative, practice-led methodology grounded in ethnographic fieldwork conducted in the Panchmura pottery cluster. Data collection methods included participant observation, informal interviews with artisans, photographic documentation, and process mapping of clay preparation, forming, surface treatment, and firing practices. These methods enabled a detailed understanding of both technical processes and their cultural context.

The researcher's background in ceramic practice facilitated an embodied understanding of material behavior, tool use, and kiln operation. Visual documentation was used to record sequential stages of production, while field notes captured technical, social, and contextual insights. All photographs included in this study were taken by the author during fieldwork in Panchmura.

The researcher's prior engagement with traditional pottery practices and doctoral research on indigenous ceramic technologies informed the interpretation of material processes without introducing external technological interventions.

3. Global Background: Black Pottery Traditions

Across world history, pottery technologies have evolved through the manipulation of firing atmospheres, particularly the control of oxidation and reduction conditions. Early examples include Egyptian Black-Top ware and Greek Black-Figure pottery, where variations in firing produced distinctive black and red surfaces. These traditions reflect an empirical understanding of the chemical transformation of iron-rich clays under controlled heat and oxygen conditions (Rice, 1987; Tite, 2008).

In South Asia, pottery production dates back to the Neolithic period, with archaeological evidence from Mehrgarh (circa 7000–6000 BCE) (Possehl, 1999; Chakrabarti, 1995). The Harappan civilization further refined ceramic technologies, producing both utilitarian and ritual wares. Reduction-fired traditions such as Painted Grey Ware and Northern Black Polished Ware demonstrate a long-standing continuity of black and red surface treatments achieved through controlled firing (Kenoyer, 1998). These historical practices find parallels in contemporary pottery traditions in India, including Panchmura.

The saggar firing technique, in which ceramic objects are partially or fully enclosed during firing, has been used to control atmospheric conditions and surface effects. While it is often explored as an experimental method in studio ceramics, in India it remains part of living craft traditions (Rhodes, 1973). In Panchmura, similar principles are evident in open saggar firing, where controlled exposure to reduction and oxidation produces bi-chromatic surfaces within a single firing cycle.

During the colonial period, shifts in artistic production and the introduction of industrial materials influenced indigenous craft traditions across India (Guha-Thakurta, 1992). Despite these challenges, clusters such as Panchmura have sustained their practices through adaptation, preserving both technical knowledge and cultural continuity. These living traditions provide valuable insight into the persistence and relevance of indigenous ceramic technologies in contemporary contexts.

4. The Making Process

Potters typically obtain clay from local middlemen. The clay is first sieved, mixed with water, and tempered with dried paddy plant locally known as “khar,” constituting approximately 20% of the mixture. Sand is added in a ratio of 4:1 (clay to sand), and the material is kneaded by hand and foot. Sand functions as a temper, improving thermal resistance and reducing cracking during drying and firing, while khar enhances plasticity and further stabilizes the clay body.

After kneading (Fig. 1), the prepared clay is stored near the workshop and covered with plastic sheets and fabric. Forming begins on a manually operated pottery wheel, rotated using a wooden stick. Water pots are initially shaped as cylindrical forms, which are cut and partially dried. At the leather-hard stage, they are beaten and refined using terracotta tools and wooden paddles.



*Figure 1: Clay preparation in Panchmura: kneading and tempering clay with sand and khar (dried paddy plant).
Source: Author (fieldwork)*

For votive figurines, potters begin with conical or cylindrical forms that are shaped into individual components such as limbs, body, and head. These components are cut from the wheel using a thread and allowed to dry slightly. At the leather-hard stage, they are assembled and refined using simple hand tools to achieve the final form (Fig. 2).

Decoration is primarily carried out by women using techniques such as scratching, stamping, and relief work. Simple tools made from bamboo, locally called “chirari,” are used to create surface patterns (Fig. 3). After shaping and decoration, the objects are dried slowly in a shaded area before being exposed to sunlight. Depending on weather conditions, drying to the bone-dry stage takes approximately 5–7 days. The next step involves applying clay-based slips. Panchmura potters use three types of natural coatings: “Khadigad” (white), “Banak” (brown), and “Bhalogad” (yellow). The latter two have an oily texture similar to glaze and are applied sequentially, allowing each layer to dry before the next is added (Fig. 4).



Figure 2: Forming process in Panchmura: shaping clay forms on a manually operated pottery wheel. Source: Author (fieldwork)



Figure 3: Decoration of terracotta votive figures using traditional tools such as bamboo “chirari,” demonstrating techniques of scratching, stamping, and relief work (Source: Author’s Fieldwork)



Figure 4: Preparation and application of natural clay slips (Khadigad, Banak, and Bhalogad) for surface treatment prior to firing. Source: Author (fieldwork)

These slips are prepared by mixing clay with water and storing the mixture in terracotta containers for several months. During this period, the mixture thickens and develops into a pigment suitable for surface application. The coated objects are then dried again in sunlight. In reduction firing, these slip-coated surfaces can turn black due to chemical transformation.

During field observation, additional artifacts such as small pinch dolls were documented. These hand-formed figures, traditionally made by women, resemble archaeological finds from sites such as Chandraketugarh in West Bengal (Perryman, 2000). One example is the figure of Goddess Shasti, depicted with a bird-like face and holding two children (Fig. 5). Another observed object was a traditional clay percussion instrument known as the “Khol.”

In Panchmura, potters employ three firing processes using a single traditional kiln. Oxidation firing is used for producing red-colored utilitarian wares and votive figures. Reduction firing produces black-colored artifacts such as Manasa jars and animal figurines. Open saggar firing combines oxidation and reduction within a single cycle to create bi-chromatic surfaces.



Figure 5: Terracotta votive figures: Goddess Shasti, illustrating form, surface treatment, and iconographic detail. Source: Author (fieldwork).

5. Firing Processes in Panchmura

The traditional kiln used in Panchmura has a cylindrical structure, typically measuring 1–2 m in diameter and 1–2.5 m in height. The kiln consists of two main parts: a lower fire chamber with a side opening for fuel insertion, and an upper chamber for loading wares. The floor of the upper chamber contains small perforations that allow heat and flames to circulate evenly (Fig. 6).

5.1 Oxidation Firing

In oxidation firing, wares are loaded into the upper chamber from the top. After loading, wooden sticks are placed over the wares, and the opening is covered with broken terracotta shards arranged in a dome-like structure (Fig. 7).

Gaps between the shards act as chimneys, allowing airflow and the addition of fuel during firing.



Figure 6: Traditional kiln structure in Panchmura, showing the cylindrical form, fire chamber, and upper loading chamber used for firing terracotta artifacts. Source: Author (fieldwork)



Figure 7: Preparation of the kiln for firing: placement of wooden fuel and covering of the kiln top with broken terracotta shards to form a dome structure. Source: Author (fieldwork).

The dome is then covered with a layer of rice husk followed by a coating of clay made from a mixture of ash, soil, and water. While the clay is still moist, small ventilation holes are created to regulate airflow. This temporary structure provides insulation and helps maintain stable temperatures.

Dry eucalyptus leaves are used as fuel, and the firing process typically lasts 4–5 hours. Temperature is monitored visually through the color of the flame, smoke, and heated wares. Fuel is added through the fire gate and, when necessary, through the chimney openings to maintain uniform heat distribution.

After reaching the desired temperature, all openings are sealed, and the kiln is allowed to cool gradually. The following day, the fired wares are removed. This method demonstrates an efficient indigenous system of temperature and airflow control without reliance on permanent kiln structures or industrial fuels.

5.2 Reduction Firing

Reduction firing follows a similar loading and sealing process. However, airflow is restricted after the kiln reaches high temperature. Chimneys and openings are sealed, and fuel is added in controlled amounts to generate smoke.

Cow dung cakes are introduced into the fire chamber and moistened before use to produce dense smoke. The fire gate is then closed, trapping the smoke inside the kiln and creating a low-oxygen environment. This reduction atmosphere transforms iron oxide in the clay and slips from ferric oxide (Fe_2O_3) to magnetite (Fe_3O_4), resulting in a stable black surface (Fig. 8).

The kiln is left to cool for approximately one day before unloading. The process relies entirely on the potters' experiential knowledge to control temperature and atmosphere.



Figure 8: Reduction firing process: addition of cow dung cakes and sealing of the kiln to create a low-oxygen environment for black surface formation. Source: Author (fieldwork).



Figure 9: Artifacts produced using open saggar firing, displaying characteristic bi-chromatic surfaces resulting from controlled oxidation and reduction. Source: Author (fieldwork).

5.3 Open Saggar Firing

Open saggar firing is used to produce bi-chromatic surfaces on a single artifact. In this technique, part of the object is enclosed within a container filled with organic material, while the remaining portion is exposed to the open kiln environment. In Panchmura, the object is placed inside a terracotta bowl filled with cow dung cakes, creating a localized reduction environment. The exposed portion is covered with sand, maintaining an oxidation atmosphere. As a result, the enclosed section turns black while the exposed section remains red, with a visible boundary between the two zones (Fig. 9).

This technique demonstrates a refined understanding of localized atmospheric control within a single firing cycle. Due to limitations in kiln temperature and smoke density, the black coloration remains primarily on the surface rather than penetrating the entire body.

Despite occasional material loss during firing (approximately 10–20%), potters adapt by repairing damaged wares or applying surface treatments to achieve desired finishes.

6. Results and Discussion

The study documents a sophisticated system of indigenous pottery production in Panchmura, characterized by context-specific material adaptation and technical efficiency. Potters use locally sourced clay tempered with sand and khar (dried paddy plant), enhancing plasticity and thermal resistance. Surface treatments involve natural clay slips rich in iron oxide, which respond differently under varying firing atmospheres.

Three firing techniques—oxidation, reduction, and open saggar—are executed within a single traditional kiln. This multifunctional system enables the production of red, black, and bi-chromatic artifacts without reliance on industrial infrastructure. The findings also reveal a clear gendered division of labour, with women playing a significant role in clay preparation, surface decoration, slip application, and post-firing processes. These observations indicate a highly integrated production system combining technical skill and social organization.

The findings suggest that Panchmura pottery practices are guided by an empirically developed system of material intelligence rather than formal technical training. The ability to control firing atmospheres using organic fuels and temporary kiln modifications reflects a highly adaptive technological strategy rooted in long-term experiential knowledge.

Cultural beliefs, such as the ritual significance of Manasa votives, reinforce continuity by linking production practices to social and religious life. This integration of material practice and cultural meaning contributes to the persistence of the craft tradition.

Furthermore, the multifunctional use of a single kiln demonstrates an energy-efficient approach that minimizes resource consumption while maximizing production diversity. The gendered distribution of labour supports intergenerational knowledge transfer, strengthening the resilience of the craft ecosystem.

Such embodied knowledge positions Panchmura pottery as a living archive of ceramic practice, offering valuable insights for both craft research and archaeological interpretation.

This study highlights three key insights. First, indigenous pottery systems such as Panchmura operate through deeply embedded material knowledge aligned with principles of sustainability and circular resource use. Second, technical adaptability—rather than technological modernization alone—plays a central role in sustaining traditional craft practices. Third, cultural belief systems are integral to production, supporting skill transmission, community participation, and continuity. These insights challenge linear narratives of craft decline and demonstrate the continued relevance of traditional technologies within contemporary design and sustainability discourse.

7. Conclusion

The terracotta pottery practices of Panchmura represent a resilient and adaptive craft tradition sustained through indigenous material knowledge, culturally embedded production systems, and flexible firing technologies. This study demonstrates that the continuity of Panchmura pottery is not accidental but emerges from an integrated relationship between technical expertise, ritual belief, and community organization.

By documenting clay preparation methods, forming practices, surface treatments, and oxidation, reduction, and open saggar firing techniques, the research reveals a sophisticated system of technological intelligence developed through generations of experiential learning. These practices operate without reliance on industrial infrastructure and reflect principles of sustainability, resource efficiency, and circular material use.

The multifunctional use of a single traditional kiln, capable of producing varied surface effects through controlled atmospheric conditions, highlights the adaptability of indigenous ceramic technologies. At the same time, the role of gendered labour, particularly the contribution of women in decoration, slip application, and post-firing processes, underscores the importance of social organization in sustaining craft practices.

From a design perspective, Panchmura offers valuable insights into process-based innovation, material sensitivity, and low-energy production systems. The study suggests that traditional craft knowledge can inform contemporary design approaches that prioritize sustainability, local resources, and context-specific solutions. Rather than viewing such traditions as obsolete, they should be understood as dynamic systems capable of adaptation and relevance in present-day design discourse.

Recognizing and supporting indigenous ceramic systems such as Panchmura is essential for informed strategies in craft preservation, design education, and policy-making. The cluster stands as a compelling example of how traditional pottery practices can continue to evolve through adaptive knowledge systems, reinforcing the importance of vernacular technologies in shaping sustainable futures.

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Conflict of Interest

The author declares no conflict of interest.

Author Contribution

The author solely conducted the fieldwork, analysis, and writing of this study.

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Tracing the Legacy of Zeitgeist: Exploring the Influence of Tagore's Ideology from Jorasanko to Santiniketan and Beyond

Sumitabha Pal¹ & Tanima Bhattacharya²

Silpa-Sadana, Visva-Bharati, Santiniketan – 731235, West Bengal, India

¹E-mail: sumitabhpalcg@gmail.com; ²tani.bhattacharya1@gmail.com

Abstract:

This research paper explores Rabindranath Tagore's ideology of Zeitgeist, originating from his ancestral home at Jorasanko, and its significant impact on the design, aesthetics, culture, social dynamics, and everyday life of Santiniketan and Bengal. Tagore, a luminary in Indian literature, art, and philosophy, founded Santiniketan-Sriniketan as an experimental school and later as a university, embodying a harmonious blend of nature, culture, and education. This vision contributed to the Bengal Renaissance of the late 19th and early 20th centuries, a period marked by cultural revival and the synthesis of Eastern and Western influences, reflecting the Zeitgeist of the era.

Utilizing archival materials, literature, semiotic analysis, and visual documentation, the study examines how Tagore's ideas and practices permeated the community life and culture of Santiniketan. The paper particularly highlights Tagore's revolutionary approach to aesthetics and design, which emphasized inclusivity and integration with nature, presenting a contrast to the industrial and mechanical ethos of the colonial period. Festivals, educational philosophy, and daily practices in Santiniketan exemplify this cultural vision, creating a microcosm where diversity is celebrated. The research aims to provide a deeper understanding of how Tagore's ideology, from its roots in Jorasanko, shaped the cultural and educational landscapes of Santiniketan and Bengal.

Keywords: Aesthetics, Cultural landscape, Ideology of Tagore, Semiotics, Zeitgeist.

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1. Introduction

During the late nineteenth century, when British ruled undivided India, the traditional artistic- educational patronage systems had collapsed. Instead, the colonial rulers set up various art schools following their necessities, which only aimed to promote craftsmanship and completely demolished creative pursuits (Banerji, 2010). As a result, in due course of time, undivided India's indigenous, ethnic, artistic, and cultural traditions had been either forgotten or fell out of practice, and the by-products of the British established schools were merely able to produce visual-anthropological documents at their best (Banerji, 2010), (Tagore, 2015). In this context, Rabindranath Tagore, his birthplace, and the cultural epicentre of Calcutta, i.e., Jorasanko, and later Santiniketan-Sriniketan as the breeding ground of Tagore's ideology has enacted as the catalyst to cultural, educational, and social changes. This change is represented by Zeitgeist. Zeitgeist is the political, cultural, economic, social, and disciplinary circumstances that affect the quantity and quality of creativity in a particular time and place. The early phase that the urgency of finding an indigenous alternative to Victorian academic realism has taken a nationalist 'revivalist' tempo, triggering Zeitgeist.

Along with the nationalists, the artists of Bengal School sought refuge in the indigenous oriental style of rendition and explored the history-mythological anecdotes. Later, the students of Abanindranath Tagore (1871-1951) in Santiniketan preferred the immediate over the historicist oriental sense of Indian modern (Banerji, 2010). These prove that the story of art is a non-linear and considerably conflicting historical discourse and proves to contextualize Zeitgeist indubitably (Roy, 2015, 2016).

A thorough analysis of the literature on the idea of Zeitgeist in cultural, historical, and design discourses serves as the main foundation for the study's qualitative and interpretive methods. The theoretical framework is established by a critical analysis of secondary materials, such as academic literature on intellectual history, cultural psychology, and modern Indian art. This is supplemented with a contextual analysis of Santiniketan-Sriniketan's cultural environment, looking at its institutional ethos, sociocultural practices, and pedagogical philosophy as expressed in historical literature, archival materials, and documented practices. The following sections reveal the comprehensive idea of zeitgeist and its implications through exploring the influence of Tagore's ideology from Jorasanko to Santiniketan and beyond.

1.1 Zeitgeist: Etymology and Concept

The German word Zeitgeist, known as the "spirit of the age" literally can be translated to "time-spirit", where Zeit denotes "time" (from Proto-Germanic *tidiz* "division of time," from Proto-Indo-European root meaning *da-* "to divide") and Geist as "spirit". Carlyle has it as a German word in "Sartor Resartus" (1840) and translates it as "Time-Spirit" (Zeitgeist) (Krause, 2019), (Reed et al., 2014).

Zeitgeist, which translates to "spirit of the times" or "spirit of the age," refers to the cultural, intellectual, and moral climate of a particular era, which shapes the values, beliefs, and attitudes of people living in that time. The Zeitgeist is the intellectual fashion or dominant school of thought that typifies and influences the culture of a particular period of time. For example, the Zeitgeist of modernism typified and influenced Architecture, Art, and Fashion during much of the 20th century.

As a conceptual variable, *Zeitgeist* has been studied in various academic disciplines, including sociology, psychology, and cultural studies. It is often used to describe the dominant ideas and values of a particular period, as well as the ways in which these ideas and values are reflected in social and cultural practices (Reed et al., 2014), (Rapaport, 1993).

In sociology, the concept of *Zeitgeist* is closely related to the idea of cultural hegemony, which refers to the dominant cultural beliefs and values that shape social structures and relationships. Sociologist Antonio Gramsci used the concept of cultural hegemony to explain how dominant classes maintain their power by shaping the cultural values and beliefs of society (Mudde, 2004).

In psychology, *Zeitgeist* is often studied in the context of cultural psychology, which examines the ways in which culture shapes individual behaviour and cognition. Psychologist Richard Nisbett has argued that cultural differences in cognition and perception are shaped by the *Zeitgeist* of a particular period, as well as the cultural values and practices that are prevalent at that time (Mudde, 2004), (Gigante, 2007). In this regard, cultural psychology emphasizes that thinking patterns are not universal but are embedded within socio-cultural contexts and historically situated practices (Nisbett, 2003). A compelling example can be drawn from early 20th-century Bengal, particularly from Rabindranath Tagore's Santiniketan–Sriniketan experiment, where education, art, and everyday life were consciously structured to reflect a synthesis of local traditions and global humanist ideals. The pedagogical environment encouraged holistic perception, ecological sensitivity, and collaborative learning, which shaped cognitive orientations distinct from colonial urban education systems (Banerji, 2015). At Sriniketan, craft-based education and rural reconstruction programs further reinforced culturally embedded knowledge systems, where cognition was intertwined with manual practice, community engagement, and ethical responsibility. This illustrates how the cultural milieu of Santiniketan functioned as a living *Zeitgeist*, fostering alternative modes of perception and knowledge production rooted in indigenous epistemologies while remaining dialogic with global thought (Stolte & Fischer-Tiné, 2012).

In cultural studies, the concept of *Zeitgeist* is used to examine the ways in which cultural artifacts, such as Art, Literature, and Music, reflect the values and attitudes of a particular period. Cultural critic Fredric Jameson has argued that the cultural artifacts of a particular era reflect the *Zeitgeist* of that era, as well as the ways in which that era is embedded in the broader social and political context.

Overall, the concept of *Zeitgeist* has been an important framework for understanding the ways in which cultural and historical contexts shape social values, practices, and consciousness. It has been studied across a wide range of academic disciplines, and has been used to explain the complex relationships between culture, history, and social change.

2. Contextualizing *Zeitgeist* in Early 20th Century India

Considering the pre-independent Indian scenario, the downtrodden and desolated Indian spirit once again intensified during the time of the Sepoy Mutiny in 1857. The spirit of nationalism consolidated and rose at the end of the nineteenth century (Stolte and Fischer-Tiné, 2012).

On the other hand, colonialists established schools to educate the natives to create cheap labourers, craftsmen, and clerks to serve and suffice the British empire (Stolte and Fischer-Tiné, 2012). As well as try to create a distance with the richness of our age-old cultural heritage that in a way, encourage themselves toward Swadeshi movements.

The emergence of Santiniketan as a significant centre of artistic and intellectual activity in the 1920s constituted a critical juncture in the development of modern Indian art, fostering a renewed sense of coherence between artistic practice, education, and the natural environment. At the centre of this transformative idea was Rabindranath Tagore (1861–1941), whose educational philosophy reconfigured art practice as an experiential and ecological process grounded in an attentive engagement with the laws and rhythms of nature (Tuteja and Chakraborty, 2017). For Tagore, artistic expression was inseparable from the relationship between human beings and their surrounding environment, an understanding that offered a significant alternative to the increasing estrangement from nature evident in contemporary European artistic discourse. Nandalal Bose (1882–1966), particularly through his sustained engagement with landscape, translated this philosophical proposition into an artistic vocabulary that sought to establish a dynamic reciprocity between art and the natural world, thereby giving material form to Tagore's vision (Bhattacharya & Sen, 2017). The significance of Tagore's intervention also lay in its departure from the revivalist and historicist orientation associated with Abanindranath (Mitter, 2007). Rather than locating artistic identity primarily within the recovery and reinterpretation of an idealized historical past, Santiniketan encouraged an outward-looking engagement with the local, the immediate, and the lived environment. This shift enabled art to be understood not as an autonomous cultural object but as a relational practice emerging through continuous interaction with its social, ecological, and spatial contexts. Within this framework, the environment was not merely a subject or backdrop for artistic production; it became an active constituent of the creative process. Santiniketan thus articulated a model in which art and environment could enter into a reciprocal and mutually generative relationship, opening new possibilities for artistic knowledge and practice in modern India.

Hence, to understand the *Zeitgeist* of British colonial India and its artistic endeavours during the first half of 20th century, the present research paper explores the direct and passive influence of Indian politics, Swadeshi movements, and zeal to freeing the indigenous artistic pursuits from the planned invasion of European ethos.

3. *Zeitgeist* in the early phase of Bengal, Kolkata

Rabindranath Tagore's ideology, deeply rooted in the spirit of the Bengal Renaissance, found its initial reflection in the cultural and intellectual milieu of Jorasanko, his ancestral home in Kolkata. This environment played a crucial role in shaping Tagore's thoughts on education, art, and society, which later influenced his broader vision for Santiniketan and beyond (Bharucha, 2012). Jorasanko's role in the Bengal Renaissance and its emphasis on cultural revival and social reform resonated deeply with Tagore's own aspirations for a liberated and culturally enriched India. He envisioned an education system and a society where individuals could grow intellectually and spiritually, drawing from the rich cultural heritage he experienced at Jorasanko (Bharucha, 2012).

The Tagore household at Jorasanko was a vibrant hub of cultural and intellectual activity. It was here that young Rabindranath was exposed to a rich tapestry of artistic and literary traditions. The Tagore family was instrumental in the Bengal Renaissance, a movement that sought to revive Indian cultural and intellectual life under the shadow of colonial rule (Dasgupta, 2004). This environment nurtured Tagore's early education and artistic pursuits, fostering a lifelong commitment to integrating art, literature, and education.

The influence of Jorasanko on Tagore's ideology is evident in his literary works and educational philosophy (Banerji, 2015). His early experiences at Jorasanko informed his belief in the importance of a holistic education that nurtures creativity and critical thinking, contrasting sharply with the colonial education system's rigid and rote methods. This belief later found concrete expression in the establishment of Visva-Bharati at Santiniketan, where Tagore sought to create an educational environment that mirrored the intellectual and cultural vibrancy of Jorasanko.

4. Establishing 'Indianness' in Art and Aesthetics

Following the *Zeitgeist* at the capital city of Calcutta (Presently Kolkata), led by one of the major cultural epicentres of Jorasanko, i.e., the Tagore family, art, aesthetics, literature, culture have got a modern thrust (Banerji, 2015). By 1910, triggered by the nationalistic zeal and unfathomable waves of modernity, a circle of extraordinary artists had come together in Calcutta with an ideology to revitalize knowledge of the historical-traditional arts of India and seek new modes of expression in the production of modern Indian Art which were not dependent on a British colonial standard (Banerji, 2010).

The search for "Indian-ness" in the early phase of the Bengal school was centred around the pictorial elements found in the painting styles of Ajanta and Mughal painting. The large body of works done by Abanindranath (as seen in Figure 1), Nandalal's teacher, showed the direct influence of Ajanta style and Mughal miniature painting in their sophisticated formal arrangements.

Likewise, Nandalal was initially influenced by Mughal paintings, but gradually he started searching for a much wider range of artistic traditions. He began to eliminate attention away from surrounding areas with the use of darkness and light. Nandalal easily moved to a more flattened picture plane and started adapting an overall decorative restructuring. Nandalal was the first Indian teacher to truly explore a wide range of traditions in order to formulate a new visual language. He studied not only the art forms of India, but also those of neighbouring countries in East and West Asia (Bharucha, 2012). He found such a strong affinity with the cultural syntax of Eastern civilizations that he had deemed it necessary to have their best example copied on the walls of campus buildings in both two and three dimensions, thus, artwork from ancient Egypt and Mesopotamia embellished Santiniketan walls in the form of painting and relief sculptures. Nandalal's objective in recreating these works was to install an overall knowledge of other cultures; in the process, he too, absorbed various elements that enriched his own artistic vocabulary. The process of teaching combined with the process of learning culminated in Nandalal's assimilation of the best of a variety of Eastern artistic traditions. Inquiries into old and new, indigenous, and foreign art forms had harmonious and fruitful results in his Art.

As the nationalist movement gained momentum, dissatisfaction with the conventions of illusionistic Figure 1: Bharat Mata painted by representation resurfaced within Indian artistic discourse. Abanindranath Tagore in 1905 is widely considered the defining masterpiece of the Bengal School that captures the essence of Artists increasingly questioned the aesthetic assumptions associated with colonial modernity and, amid the growing cultural and political anxieties of the period, turned their attention once again towards the indigenous and pre-colonial past. This renewed engagement with earlier artistic traditions was not simply an act of historical recovery; it reflected a broader search for cultural autonomy and an alternative basis for artistic expression beyond established colonial paradigms. The resulting oscillation between competing aesthetic preferences, genres, and cultural influences may be understood as a defining feature of Indian modernism. At the same time, this tension was by no means confined to the Indian context. Comparable shifts between inherited traditions, emerging artistic vocabularies, and external influences were characteristic of nineteenth-century art across different geographical and cultural contexts, reflecting a broader historical sensibility or *Zeitgeist* shaped by the

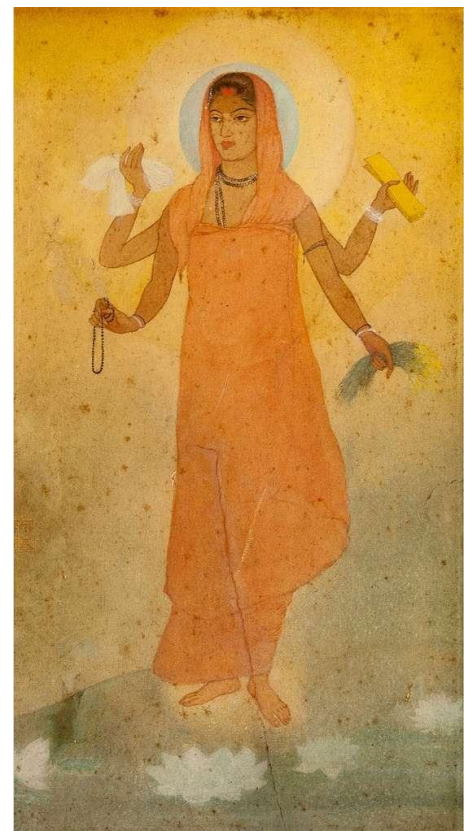


Figure 1: Representative work of Abanindranath Tagore, illustrating the influence of Ajanta and Mughal painting styles in the early Bengal School. (Source: Author's collection)

complex encounter between tradition, modernity, nationalism, and cultural transformation. It marked a transition from the harmonious form of Indian representational style has thus been established the eclecticism during early 20 century to a more direct form of representation th and visual communication.

5. Experiment of Santiniketan – Sriniketan School

Rabindranath Tagore's vision for Santiniketan and Sriniketan was a revolutionary experiment in education, deeply rooted in the Zeitgeist of the early 20th century Bengal Renaissance. His ideology, encapsulated in the triad of “Nature - Tradition - Originality” (Bhattacharya and Sen, 2017), sought to harmonize the natural environment with cultural and educational practices, fostering a holistic development of individuals and communities. Established in 1901 (Santiniketan) and 1921 (Sriniketan) respectively, these institutions transcended the confines of traditional schooling, instead fostering a holistic learning environment centred on the ideals of nature, culture, and education (Tagore, 1918) and show how Tagore's vision reflected the Zeitgeist of his time and influenced the design, aesthetics, and cultural life of Santiniketan and Sriniketan (Guha, 2018).

The Zeitgeist of the early 20th century, characterized by a quest for national identity, cultural revival, and social reform, profoundly influenced Tagore's vision for Santiniketan and Sriniketan in the form of Nature - Tradition - Originality. His ideas were a response to the colonial education system and the socio-economic challenges faced by Indian society. Tagore's educational experiment was an embodiment of the broader intellectual and cultural awakening of his time, seeking to create a harmonious and progressive society (Roy, 2015, 2016). And hence, Tagore's approach to education was significantly influenced by his belief in the integral relationship between nature and learning. He envisioned an educational environment where students could learn in the open air, surrounded by nature, as opposed to the confined spaces of traditional classrooms (Tagore and Thakura, 1958). The design of Santiniketan, with its open-air classrooms and integration of natural elements, was a direct manifestation of this philosophy. Tagore believed that nature had a profound impact on the human mind and spirit, fostering creativity, empathy, and a sense of belonging (Scott, 2006). He also advocated for an education system that was experiential, student centred, and connected to real-life contexts (O'Connell, 2003). The establishment of Sriniketan, an extension of Santiniketan, focused on rural reconstruction and vocational training, aimed at empowering the rural population and bridging the gap between urban and rural communities. In conclusion, Rabindranath Tagore's ideology of “Nature - Tradition - Originality” at Santiniketan and Sriniketan was a reflection of the Zeitgeist of his era (Guha, 2018). His vision continues to inspire contemporary educational and cultural practices, emphasizing the importance of holistic development, cultural identity, and social responsibility.

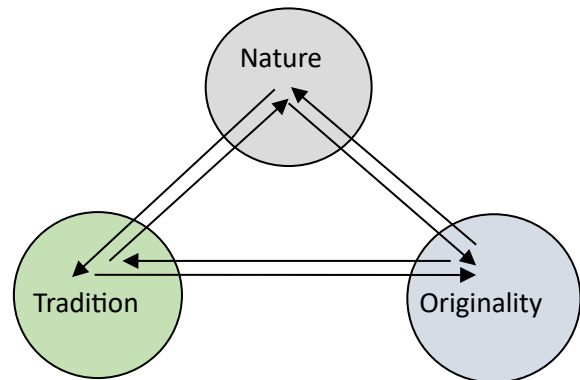


Figure 2: The triad of Nature-Tradition and Originality speculated by Rabindranath Tagore in Santiniketan, West Bengal. (Source: Bhattacharya & Sen, 2017)

6. Zeitgeist: Inclusive nature and integrated global culture

6.1 Education policy

Rabindranath Tagore's educational policies at Santiniketan and Sriniketan were ground-breaking, reflecting his belief in holistic and integrated education. Tagore's approach emphasized learning in a natural environment, moving away from the rote memorization and rigid structures of traditional education. Classes were often held outdoors under trees, fostering a close connection with nature and encouraging students to learn from their surroundings. Tagore's curriculum at Visva-Bharati was interdisciplinary, combining arts, humanities, and sciences, and incorporating music, dance, and fine arts as essential components of education (UNESCO, n.d.).

In Sriniketan, Tagore extended his educational philosophy to rural development and vocational training. Established as a rural reconstruction centre, Sriniketan aimed to address the socio-economic challenges of rural communities. The educational policies here were designed to empower villagers through practical skills and knowledge, promoting self-sufficiency and community development. Vocational training included agriculture, cottage industries, and healthcare, integrating traditional practices with modern techniques (Tagore, 1941), (Dutta, 2019).

Tagore's policies also emphasized the importance of moral and ethical education, fostering a sense of global citizenship and cultural pride. He encouraged students to respect and appreciate diverse cultures while nurturing a strong sense of their own cultural identity (Dutta, 2019).

Tagore's educational experiments at Santiniketan and Sriniketan were a testament to his vision of an education system that was not only about intellectual development but also about nurturing the soul, fostering creativity, and building a harmonious relationship with nature (Tagore and Thakura, 1958).

6.2 Festivals

The festivals of Santiniketan and Sriniketan are deeply intertwined with Rabindranath Tagore's philosophy of education, culture, and the natural environment (Bharucha, 2012; Roy, 2016; Tuteja & Chakraborty, 2017). These celebrations are not only cultural

events but also integral to the holistic development of individuals and the community, reflecting the harmonious relationship between nature and human life.



Figure 3: Glimpse of Poush Mela, Santiniketan that celebrates the creative economies and crafts and indigenous design. (Source: Wikimedia Commons)

One of the most prominent festivals is Poush Mela, held in December to mark the harvest season. This festival embodies the spirit of rural Bengal, featuring folk music, dance, crafts, and local cuisine. It celebrates the bounty of nature and the community's connection to the agricultural cycle, fostering a sense of gratitude and harmony with the natural world. Basanta Utsav, or the Spring Festival, is another significant celebration, coinciding with Holi, the festival of colours. Tagore introduced this festival to celebrate the arrival of spring, symbolizing renewal and the vibrant beauty of nature.



Figure 4: Glimpses of the Festivals of Santiniketan – Sriniketan that celebrate the monsoon season through *BrikshaRopan* (at Santiniketan) (right) and *Halakarshan* (at Sriniketan) (left). (Source: Author)

In Sriniketan, Halakarshan Utsav (ploughing festival) marks the beginning of the agricultural season. It emphasizes the importance of agriculture in rural life and the deep connection between human labour and the earth. These festivals highlight

Tagore's belief in the integration of nature with culture and education. They foster a deep respect for the natural world, promote cultural heritage, and enhance communal bonds, embodying Tagore's vision of a harmonious and holistic way of living.

7. Tagore's ideology on Zeitgeist and its impact

Rabindranath Tagore's ideology on Zeitgeist, which embodies the spirit or intellectual climate of an era, significantly impacted both national and international scenarios through his unique vision of education, culture, and humanism. Tagore's understanding of Zeitgeist was rooted in a profound awareness of the cultural and philosophical currents of his time. He sought to harmonize the best of Eastern and Western traditions to foster a universal humanism that transcended national boundaries.

Nationally, Tagore's influence was most visible in the Bengal Renaissance, a cultural and intellectual awakening that sought to revive Indian traditions and integrate them with modern values. Through institutions like Visva-Bharati at Santiniketan, Tagore promoted an educational model that emphasized creativity, critical thinking, and a deep connection with nature, countering the colonial education system's rigid and rote methodologies. His efforts contributed to a resurgence of Indian cultural pride and identity, inspiring future generations of Indian thinkers, artists, and educators. His travels and interactions with global figures such as Albert Einstein, H.G. Wells, and W.B. Yeats facilitated cross-cultural dialogues that enriched both Western and Eastern literary and philosophical landscapes (Modern Review, 1931). Tagore's advocacy for universal humanism and international cooperation influenced global educational practices and philosophical thought, contributing to movements that sought peace and understanding across cultural divides.

Tagore's ideology on Zeitgeist also played a crucial role in promoting the concept of cultural exchange and mutual respect among different civilizations. His vision for a world united by cultural and intellectual collaboration remains relevant today, influencing modern discussions on global citizenship and intercultural dialogue (Gigante, 2007).

8. Conclusion

Through the conceptualization and dissemination of Zeitgeist by Rabindranath Tagore, this study has attempted to trace the deep legacy of Zeitgeist, starting from his ancestral home at Jorasanko and continuing to the experimental educational and cultural hub of Santiniketan and beyond. Tagore's philosophy, which has its roots in Bengal's cultural renaissance, aimed to promote inclusive and comprehensive human development by balancing nature, culture, and education.

Tagore's perspective was profoundly impacted by the dynamic intellectual and cultural milieu he encountered in Jorasanko. The establishment of Santiniketan-Sriniketan, where Tagore's cultural and educational concepts were not only implemented but also developed, was a direct result of this impact. Through the integration of nature into school and the prioritisation of the arts and cultural heritage, Tagore developed a ground breaking approach to teaching contrasting sharply with the colonial education system of his time.

Tagore's ideology and its implementation in Santiniketan represent a significant shift towards a more inclusive and nature-integrated cultural paradigm. This shift not only challenged the industrial and mechanical Zeitgeist of the colonial era but also offered a timeless model for holistic education and cultural development. The legacy of Tagore's vision continues to resonate, inspiring contemporary approaches to education and cultural integration.

In conclusion, Tagore's influence, emanating from the historic halls of Jorasanko to the serene landscapes of Santiniketan, has profoundly shaped the aesthetics, educational philosophies, and cultural landscapes of a community and region. His enduring legacy invites ongoing exploration and appreciation in the quest for a more harmonious and inclusive global culture.

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Evolution of Design Motifs of Baluchari Sarees: Traditional to Contemporary

Ashis Narayan Banerjee¹, Animesh Laha², Anindya Ghosh³, Subhasis Das³,
Debasish Pailan³, Keya Ghorai³

¹Silpa Sadan, PSV, Visva-Bharati (A Central University), Sriniketan, WB, Pin-731236.

²Wool Research Association (WRA), Thane, Mumbai, 400607.

³Govt College of Engineering & Textile Technology, Berhampore, Murshidabad, 742101.

*E-mail: asanimesht@gmail.com.

Abstract:

Baluchari saree is basically a silk saree, with the key attribute and differentiating factor being its design and the motifs inculcated by the artisans involved in this art. During the reign of Samrat Murshid Quli Khan, the revolution in the development of the Baluchari saree was well established and became famous. Various contemporary events are depicted in the Baluchari sarees made in Murshidabad.

In Murshidabad, the Baluchari saree developed under the patronage of Murshid Quli Khan. Since the establishment of Muslim governance, the motifs of the Baluchari saree were introduced into various contemporary events, such as the emperor's life, Samrat smoking hookah, riding horses, etc. Furthermore, Persian influence emerged alongside speedboats, rail engines, etc. Additionally, depictions of European life can also be seen, such as those of the British Army and the functions of the East India Company. This art then migrated from Murshidabad to other places, and Bishnupur is one of the most well-known for this art. The Baluchari sarees of Bishnupur depict many events from the Hindu religion, including the Puranas, Ramayana, and Mahabharata etc. The Baluchari sarees made in Bishnupur primarily depict the theme of the Hindu religion. The artists are now trying to recapture the old traditions; they have incorporated the natural and contemporary motifs and use different fiber combinations.

With the change of motif, it will be possible to bring the beauty of the Baluchari saree to people of all classes. Different types of sarees and clothing can be created for various religions, colours, ages, occasions, and seasons. This results in the scope of the design being much larger. Additionally, the cost of creating motifs in the modern system can be reduced, which can generate demand among the wealthy, middle class, and lower middle class. Consequently, the demand for goods will be significantly higher, leading to an improvement in the weaving community.

Keywords: Baluchari, Silk, Saree, Murshidabad, Bishnupur, Motif, Contemporary Events

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1. Introduction

Textiles are known as one of the fundamental needs of human civilization and are considered the most important parts of human life, along with food and shelter. They are essential mainly to cover the human body for protection against various natural threats like heat, cold, etc. (Latha and Ramachandran, 2014). The word 'textile' was derived from the Latin word 'Textere', which means to weave, and, therefore, normally by the term 'textile' we understand those items which are made using the weaving process (Bhatnagar, 2002). India has age-old heritage for handicrafts and textiles sector for a very long time, as proved by numerous archaeological findings. The first artifacts found in Mohenjo-Daro prove that cotton was spun and woven in India as early as 3000 B.C. It was discovered that a number of centres for weaving cotton, silk, and woollen cloth existed (Prunal, 2018). The excavations at Mohenjo-daro, an actual piece of cotton were discovered, which confirms that cotton was known to the people of Sindh four thousand to five hundred years back (Balaram, 2012). Evidence of weaving cotton textiles in Bengal, by both men and women artisans, was found in many ancient texts, including Kautilya's Arthashastra, Abul Fazal's Ain-e-Akbari, and during the Vedic period (Ghosh, 2021). Indian textiles are spread over a big area and can be divided technically into two groups: woven patterns and plain. Woven patterns are created by transfixing the warp in between the weft on the loom itself. Indian weavers are masters at weaving the desired patterns with cotton in the form of Jamdani, with silk known as Baluchari of Zari with Zari, as Zari brocade and on wool in the form of a shawl. Plain textiles are those that are woven with a plain structure, and get their decoration later in the form of printing, dyeing or embroidering, as in Kalamkari, resist-dyeing and different types of regional embroideries. In this way, motifs are included in textiles (Bhatnagar, 2002). Traditional Indian techniques were so advanced even in 600 A.D. that it was evident in Ajanta paintings attributed to this era, which had embroidery, bandhna (tie and dye) and patolu (Ikat weaving), brocade and muslin weaving fabrics (Prunal, 2018), etc., which were very much popular. From the Indus Valley Civilisation evidence, 'Priest King' from Mohenjo-Daro, wearing a trefoil design cloth (Balaram, 2012). Since then, Bishnupur has been the capital of the Baluchari silk saree. Bengal with rich history & heritage of Handlooms, weavers started Baluchari weaving and became famous much after Muslin. About three centuries ago, this art was replicated on handlooms in the village of Baluchar. The recent name of this village is Jiaganj in Murshidabad district on the banks of the Bhagirathi River. After the Battle of Plassey in 1757, the weavers of Baluchari sarees began to move one by one to the distant kingdom of the Malla rulers in Bishnupur. Offlate, it is a district in West Bengal, India. Meanwhile, in Murshidabad, this art had demurred due to political and economic reasons during the British rule. Moreover, the Bengal Silk

Company had to close down its factories in 1908-09 due to government policy of deindustrialization of the cottage industries. Baluchari textiles were made from the finest locally cultivated mulberry silk in weft and Bengaluru silk in warp, and the sarees were made in myriad colours, woven on traditional draw looms known as jals. The mechanism was developed and borrowed from Persia following the start of the Islamic Period in our subcontinent (Dhamija, 2019). The story of the Baluchari Saree seems to have started in 1704 when Murshid Quli Khan, the Mughal Governor of Bengal, his capital was shifted from Dhaka to the northern part of Bengal known as Murshidabad. However, the Baluchari tradition of weaving had flourished with aplomb during the era of Nabab Murshid Quli Khan, and silk weaves were patronised by the Nawabs. At the same time, Baluchari was very popular, usually known as the butidar Baluchari. At the nascent stage, the body of Baluchari saree was usually covered with motifs, like drops, circles, flowers, paisley, etc. Apart from these designs; a lady is holding a flower while seated, riding on horseback, smouldering a traditional hookah, a pair of ladies holding birds in their hands, or in conversation. Male figures represented decency on horseback, a prince proceeding to a battle field holding an uncovered dagger, a nobleman smoking a hookah holding a falcon in his hands, riding on an elephant with a mahout gripping a flag, a lion or tiger hunter, and cannoners in groups. In addition, the design of their clothing is revealed in their clothing style, organ layout, and decoration. The weavers draw inspiration from daily social events, Mughal court scenes, British culture, and other important events. Among all, the Kalka/paisley or mango motif was the most commonly used motif. This motif was created in the anchal of almost every saree. Other important motifs included Nawab smoking a hookah, Begum with a rose, Begum holding a hookah, Nawab getting a whiff of rose, Nawab riding a horse, Nawab on an elephant, hunting scenes of Nawab, etc. Some motifs were inspired by European culture, like European riding a steamboat, railway carriages; etc. One thing to know is that at that time, devout Muslims did not wear any silk clothing during their prayers. In addition, elite Muslims did not use any figurative motifs. They used fabrics with non-figurative motifs or other painted woven designs. Again, the people of the Jain tribe did not use reeled silk (Dhamija, 2019). But later on, when this Baluchari saree was transferred from Murshidabad to Bishnupur, the motif was radically changed, including the events of Indian Mythology and the scenes of various events from the Ramanaya and the Mahabharata. Meera Badhua, Haradhanubhanga, Panchapandava, Sita Haran, Draupadi's swayamvara sabha, Shri Krishna's Dola yatra, etc. Akshay Kumar Das was an eminent artist and designer, and the Bishnupuri Baluchari saree got a new look when it was introduced in Bishnupur. He introduced the Ajanta-Ellora cave paintings as motifs of Baluchari. (Paul, 2024). The Bengal province with rich heritage in Handloom sector, Baluchari became renowned and widespread after long gap of Muslin weaving. Murshid Quli Khan, who was a great lover of art and patronized the revival of the silk industry in West Bengal. However, this improving trend later degenerated, especially during the British rule. After that, the Baluchari design practices shifted from Murshidabad to Bishnupur under the rule of the Mulla king. Afterward, in the early stage of the twentieth century, a great artist comprehended the need to improve the reach of Baluchari Crafts beyond its traditional look. Hem Chandra Bhattacharya have taught weaving at the textile college in Berhampur during 1948-49. He liked Dubraj Das who was poor but talented. He learned the naksha bandha in a draw loom from Hem Chandra Bhattacharya (Dhamija, The Woven Silks of Indian, 1995). The artists of Bishnupur were not experienced in the nakshabandha of the design. Later, Dubraj Das received training; he followed N.G. Mukherjee and started the design of Dubraj (Dhamija, J, 2019). Bishnupur which is well known for its silk; he invited Akshay Kumar Das, a veteran master weaver from Bishnupur, who inspired Akshay Kumar Das to learn the technique of Jacquard weaving while Baluchari weaving. After became familiar with the process, Das worked hard to weave Baluchari on looms. In this way, Baluchari made its position in Bishnupur. The saree is usually 219" in length and 42" wide. The entire body of the saree is covered with small butis, and a beautiful floral design runs across the edges. The sarees are generally dark red, yellow, green, purple, chocolate, cream, white, and blue in colour. These sarees mostly worn by Bengali women on special occasions such as wedding events, cultural programmes and religious ceremonies. About 200 years from today, the traditions of the old Baluchari saree, where deep red, green, yellow, chocolate, purple, cream, white, and blue colours are used. Various festivals are celebrated with sarees of different colours: red is worn by brides, yellow for spring, black with bright colours for 'Kayalya Teej' during the monsoon (Scott, 2001). Murshidabad District was very popular for its silk production; all Baluchari butidar textiles used *Bombyx mori* silk filaments/yarns. The silk thread comes from the cocoon in two colours: one is golden yellow, and the other is ivory white. In a plain ground weave, the colours naturally used are red, lilac, violet, dark blue, yellow, and dark brown. Only very few pieces show a creamy white ground colour. To make the motifs on it, weavers mostly weave in ivory, white, red, violet, green, yellow, and dark violet. The only tone never seen in traditional Baluchari Butidar textiles is black. In Murshidabad, the design was created using the Jala technique with a through shuttle. However, later, the design of Bishnupur's Baluchari Jacquard, also used with a through shuttle, began to be developed. Usually, two separate Jacquard machines were used for designing the border and the body. To create the design for Baluchari, the shuttle carries the design thread that is thrown by hand from one side to the other by the weaver, and the technique is locally called chalani. It is a continuous work, but if the design is not continuous, this time the design is normally prepared separately for each pattern. Small shuttles are used within the contour of the pattern, and the shuttle can't be thrown. The technique is called galani and is very laborious and time-consuming. (Dhamija, 2019).

The ancient Baluchari tradition has a silk weaving style. The intricately carved terracotta temples of Vishnupur provide ample inspiration for the weavers who reproduce whole epics on the pallu of the saree (Mazumdar and Chakraborty, 2010). Baluchari Saree with Vande Mataram inspiration, this saree was discovered and identified as a maker of change from the British colonial visual ethos in Baluchari Saree to the fervour of Jatindra Nath Jain (Dhamija, 1991).

After independence, under the revival schemes of the ancient crafts, the Director of the Indian Textile Design Centre (Kolkata Region), Sri Subha Thakur, and the founder of the Craft Council of India, Srimati Kamala Devi Chattopadhyay, made great efforts to revive the Baluchari in Bishnupur. Sir Hanuman Das Sarda, Director of the Silk Khadi Seba Mandala, sponsored this Baluchari revival project under the leadership of a textile designer named Sri Akshay Kumar Das, and Sri Gorachand Diyashi weaved the first Baluchari saree by the Jacquard loom in 1957. The complex art of Baluchari lost its uniqueness and complicated design with the death in 1903 of Dubraj Das, the last master weaver of Bahadurpur, but was revived in the 1960s through the intervention of the All-India Handicrafts Board (Singh, 2000).

The word 'namabali' or 'namavali' is a combination of two words 'nama' and 'vali' which refers to 'name' and 'garland' of name appears on textiles like chadar or gamcha these are called 'namavali'. Namabali is again represented in different types, such as Ramayana chadar and goddess chadar. These names vary based on different mantras. The kinds of motifs that can be noticed in these names are distinct: the damru of Lord Shiva, the footprint of Lord Vishnu, om, the conch shell, the sacred cow, Surya, the venerated sun, and the Vishnu chakra, etc. (Dhamija, 2019).

The silk industries of Murshidabad went into decline mainly on account of the trade policy of the British East India Company. As a result, the Baluchari saree motifs and colours begin to change slowly. Throughout the period of classical Baluchari weaving, zori, gold or silver thread was never used in Baluchari sarees of Murshidabad; they used *Bombyx mori* mulberry silk.

Mostly the same pattern is used for all Baluchari sarees. There is generally a floral border on either side and at the end of the saree, but figurative motifs have been used in only a few sarees. Mostly, the body of the saree is decorated with various types of motifs in alternating colours (Dhamija, The Woven Silks of Indian, 1995).

The most unique part of the traditional Baluchari saree is the ornamented pallu. It usually comprises large decorative mango motifs bounded on all four sides by figural motifs. Human figures are generally placed in separate architectural compartments, with one figured motif typically repeated in these compartments. Sometimes, two rows are made, and both of these rows have different motifs (Karolia, 2019).

The subject of the Baluchari Saree was inspired by the Terracotta Temple of Bishnupur, the Battle between Rama and Ravana, the Breaking of 'Haradhanu' and wedding of Rama, Battle of Kurukshetra, Ekalabya's offering to Guru Drona, the story of Dushmanta and Shakuntala, etc. Stories of Krishna-lila: Childhood of Sri Krishna, subsidence of Kaliya Nag, Killing of the demon Tarakasur, Raslila, Dolyatra, etc. Folk culture: Design-theme was based on Tribal dance, Dance with a stick, etc. In the Mughal period, the motif was influenced by Muslim culture and Rajasthani miniature paintings, as well as Mughal art in the old Western Indian style. Additionally, it was inspired by colonial rule, incorporating some European motifs, British soldiers, and imagery from the work of the East India Company (Mandal, 2011).

Due to rich, creamy base of the mukberry yarns, it is having improved dyeability which made these silk yarns for Baluchari sarees dyeable with vivid colours such as deep maroons, reds, chocolate, orange, and purples being the favourite hues. Among the other main contemporary motifs were pictures of the company's work, some life journeys of the people, and Kalighat paintings (Dhamija, Baluchars, The Woven Narrative Silk of Bengal, 2019).

A printing workshop was found at Mohenjo-Daro, which proved that the art of dyeing and printing existed during that period (Prunal, 2018). Epigraphic inscriptions, along with Ajanta murals, miniature paintings and stone, bronze and terracotta. The sculptures are clear evidence of the continuity of the Indian textile tradition. (Bhatnagar, 2002). A good example of design can be seen in the use of arrowheads as the main motif (Norbeck, 1958). The artisans make different types of motifs to make it more attractive. Based on the motifs incorporated in the saree, the handloom textile products are famous with different names like Patola, Pythani, Ikat, Baluchari, Dhaniakhali tant and Begumpuri, etc.

In Bishnupuri silk saree, Meera Badhua, Haradhanubhanga, Panchapandava, Sita haran, Krishna in Rath, Draupadi's swayamvara sabha, Shri Krishna's Dola yatra, etc. have been depicted (Paul, 2024). At present, while maintaining the Baluchari traditions, some contemporary motifs have been included in the Baluchari saree, such as those representing one of the festivals of the Adivasi society, and the events of the Karam festival have also been incorporated into the Baluchari sarees. Additionally, new motifs are being created to enhance the saleability as well as sustainability of Baluchari saree.

2. Handloom Sector of India & Relevance with Baluchari

In addition, this traditional handloom sector plays a very vital role towards boosting the country's economy. Due to its advantages of flexibility in small production runs, uniqueness, innovation, and adaptability, this sector significantly contributes to domestic market as well as export earnings. It is the second largest industry generating economic activity after agriculture, providing livelihoods to the people through direct and indirect employment for more than 12.4 million weavers and their families. It is labor-intensive character, decentralized nature, and renewable utilisation of natural resources give it a unique vantage point in the Indian economy. Hand-woven fabrics represent a cultural record of Indian history and tradition, constantly inspiring the cultural ethos of the weavers. Innovative weavers skillfully blend local myths, folklore, and faiths as woven symbols and imagery in the fabric, creating a sense of identity among the local community and aiding in communal harmony and integrity, which are fundamental to sustainability. This is how the traditional weaving industry of India is known by various names, such as Patola, Paithani, Banarasi silk, Chanderi, Ikat, Kanjivaram silk, Mysore silk, Maheshwari, Kota Doria, Dalved, etc. Traditional sarees like Shantipuri, Dhaniakhali, Baluchari, Begumpuri, Garad, Korial, Jamdani, Tangail, etc., can be seen

in West Bengal. Among them, the fundamental differences between each saree can be seen due to the variety of motifs, designs, compositions, colors, materials, etc.

2.1 Handloom Sector of West Bengal

The state of West Bengal is having strong presence in Handloom sector with sturdy number of 2,83,404 handlooms as per the 4th Handloom census conducted by the Ministry of Textiles, Govt. of India in 2019-2020. This sector creates direct and indirect employment to about 6,31,447 weavers. Figure 1 presents various handloom products made in West Bengal; it starts from the cotton-based Tant Saree to the silk-based famous high-end sarees. A few well-known handloom sarees are Baluchari, Begampuri, Muslin, etc., which are consumed domestically as well as are known for earning foreign exchange revenue.

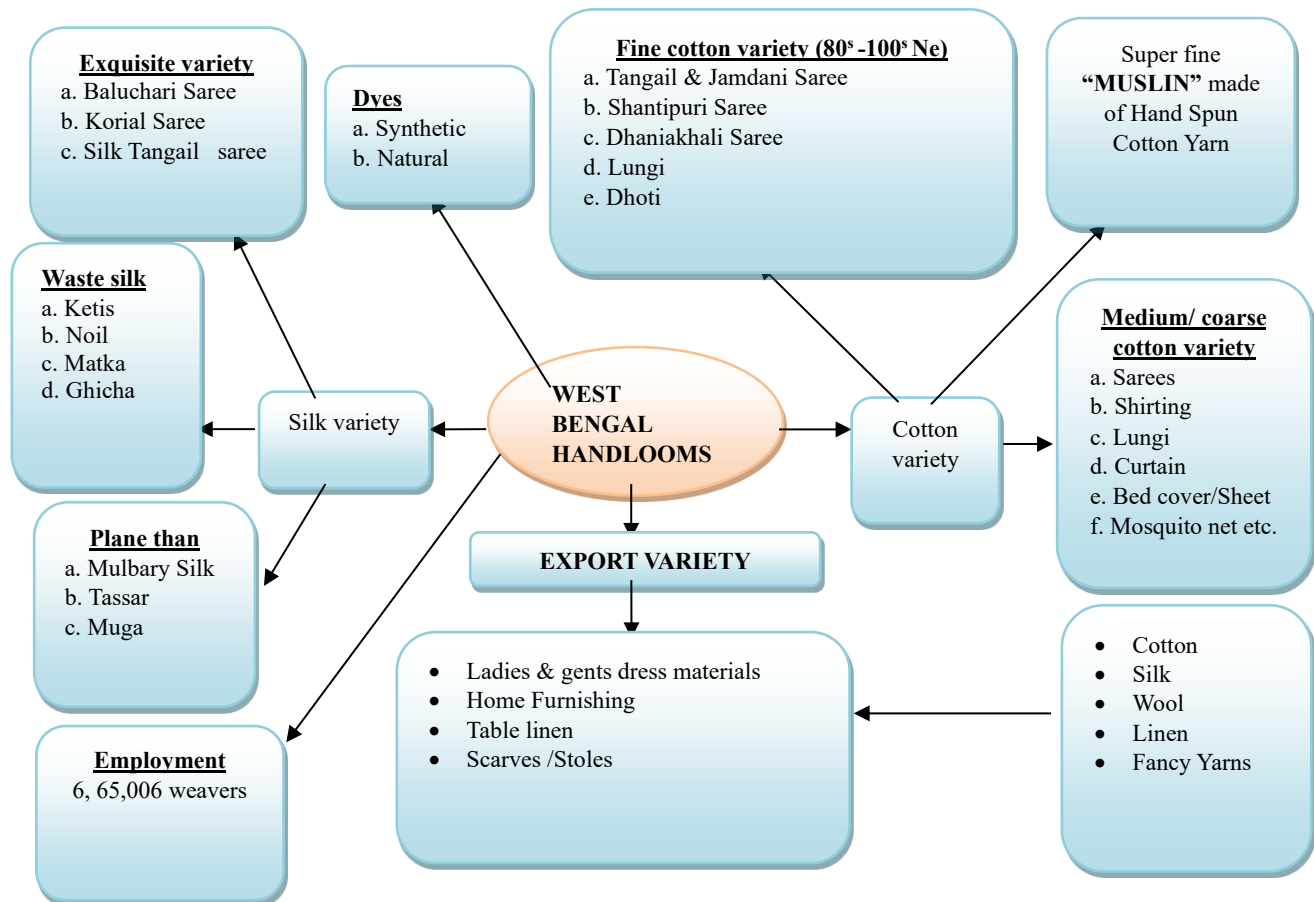


Figure 1. Bengal Handloom Products

3. Methodology

In this paper, primary as well as secondary sources are utilized with a perspective of information collection, data analysis and related interpretation (Reference: <https://handlooms.nic.in> and <https://textilesdirectorat.wb.gov.in>). Books, journals, and blogs are also utilised according to the needs of the research purpose. Further, consequences of motifs on traditional Baluchari weaving and the necessity of contemporaneity in the motif of Baluchari is presented in this article (Dhamija, Baluchars, The Woven Narrative Silk of Bengal, 2019).

3.1 Motifs of Baluchari

Table 1 presents motifs in Baluchari Saree used in various eras, starting from motifs during Islamic Patronage, followed by Hindu epics to British Patronage and contemporary motifs in the recent age (Bhattacharyya, 2022).

Table 1: Motifs of Baluchari in different eras (Bhattacharyya, 2022).

A. Islamic Patronage	B. Hindu epics	C. British Patronage	D. Contemporary
1) Nawab smelling a rose 2) Begum smoking a hookah 3) Nawab smoking a hookah 4) Court scene- Mughal and Persian 5) Hunting scene 6) Nawab on elephant 7) Nawab riding a horse 8) Rajasthani miniature motif 9) Mughal art 10) Persian art	1) Ajanta-Ellora paintings 2) Radha-Krishna based temple culture 3) Terracotta temples paintings 4) Triumphs of Lord Rama 5) Traditional Hindu religious texts and folk-tales 6) Krishna and Arjun on the Chariot 7) Scene from Bhagwat Gita	1) British soldiers 2) Western/European motif 3) Lone lady riding a horse holding a flower in the hand 4) Aristocrat ladies smoking decorative country pipe while an attendant looks on 5) A Portuguese ship harbouring a port 6) Pipe smoking gentleman in typical dress of 18th century while a concubine pours his drink	1) Animals/birds- peacocks, elephants, horse 2) Persian vase with a flowing kalka 3) Floral, leaf and flowering shrub 4) Hunting scene 5) Mango motif-kalka 6) Daily life 7) Natural- sun, moon, stars

4. Product Development

The key points considered for the diversified product development using Baluchari to enhance the market value and better penetration to the new generation consumers with a fast fashion mindset were: Trend Analysis; Material Exploration; Technique Development; Cultural Research; User research, etc.

4.1 Source of Motif

Contemporary textile design is a dynamic field that blends traditional techniques suitable for a wide range of applications, such as from wearable art to functional home decor. Thus, a designer can use an incident in the right manner. The royal hookah background, or water pipe smoking, was taken up by numerous communities across diverse regions during the ancient and medieval periods (Bhatnagar, 2002).

4.2 Design Development

To develop successful textile design and products, a designer requires different types of inspiration, depending on existing market knowledge and the target audience. The key steps are developing a design concept, exploring the fabric structure, creating technical drawings, and refining the design through prototyping, sampling, and CAD or any other suitable software, while considering the creation of a digital design. On the other hand, in the case of research and design concept, depending on customer demand and preferences, analysing existing products and identifying trends, a researcher will create uniqueness for the required design and also brainstorm ideas to develop a new design.

4.3 Fabric Selection and Dyeing

At present, different types of yarn like Modal, Tencel, Bamboo, Soya, along with silk, can be explored for value addition and/or cost reduction in the existing products instead of the traditional cotton and silk fibers. To make a new type of fabric, and to create the fabric's colour, suitable dyes can be used, such as natural dye, reactive dye, and acid dye instead of direct dye.

4.4 Design Composition

To create good textile design products, a researcher must consider combinations of technical skills, creative vision, and an understanding of design principles. By using CAD (Computer-Aided Design), a designer can develop a unique style of design. Technical Support: The Jacquard design process is an easier technique for creating brocade fabric, so researchers will also use electronics Jacquard machine, an automatic CAD punching machine, an automatic card lacing machine, etc. So that easier to make the process.

5. Sampling

5.1 Karam festival

For a long time, the Baluchari saree of Bishnupur has been a very popular saree not only in West Bengal but also all over India. The content of this saree includes stories from the Ramayana and Mahabharata, as well as the lifestyle of kings and zamindars. The design can also be of flowers, shrubs, leaves, paisley motifs, etc. Currently, the state government has started a 6-month Baluchari Certificate Course at K.G Engineering Institute (KGEI), Bankura, with a key focus on training on the creation of a unique saree by combining elements of the Baluchari saree. The contents of the indigenous society have been explored, with particular emphasis on the Adivasi Karam festival (Certificate Course on Baluchari, 2025).

5.2 Background of the Subject

Karam is a harvest festival celebrated in the Indian states of Jharkhand, West Bengal, Bihar, Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Assam, Odisha, and Bangladesh by the Adivasi. It is dedicated to the worship of Karam-Devta (Karam-Lord/God), the god of power, youth, and youthfulness. Celebration is for good harvests and health. The festival is held on the 11th day of the full moon (Purnima) of the Hindu month of Bhado, which falls between August and September. This festival is celebrated for good harvests. Nine types of seeds are planted in a basket, such as rice, wheat, corn, etc., which are called Jawa. Girls take care of these seeds for 79th days. During the festival, girls fast throughout the day. In the ritual, people go to the jungle accompanied by groups of drummers and cut one or more branches of the Karam tree after worshipping. The branches are usually carried by unmarried young girls who sing in praise of the deity. Then the branches are brought to the village and planted in centre of the ground, which is plastered with cow dung and decorated with flowers. A village priest (Pahan or Dehuri, according to the region) offers germinated grains and liquor in propitiation to the deity, who grants wealth and children. In addition, a fowl is sacrificed, and its blood is offered to the branch. The village priest tells the story of the efficacy of Karam puja to the village folk. On the following morning, the karam branch is thrown away into the river. This festival is strongly tied to nature as during the festival, people worship trees because they are their sources of livelihood, and they pray to Mother Nature to keep their farmlands green and have good harvests. It is believed that worships for good germination will lead to good crops. Karam Devta (the God of power, youth, and youthfulness) is worshipped.

The festival also has a strong connection with nature as people worship trees during this festival as a source of livelihood, and they pray to Mother Nature to keep their farmland green and ensure a rich harvest. It is believed that the worship for good germination increases the fertility of grain crops. Karam Devta (God of power, youth, and youthfulness) is being worshipped during the festival. The devotees were said to have kept a day-long fast and worship the branches of Karam and Sal. Girls celebrate the festival for welfare, friendship, and sisterhood by exchanging a jawa flower. Inspired by this festival, a new design is created, and a sample is developed (Figure 2).

5.3 Baluchari Transformation and Product Diversification

The diversification of a particular product can be achieved through the addition of designs and new ideas. Although the design of the Baluchari sarees is the main aspect of the design, the multipurpose nature of the design can be preserved by adopting the modern CAD system to reach millions of customers in the larger market in the era of fast fashion. To implement the thinking behind the new types of innovative products, a combination of old and new designs can be transformed into new products by changing the materials. The early nineteenth-century market was widely transformed; as a result, it became difficult to survive in the traditional craftsmanship industry. Later on, the transformation of industries like Baluchari weaving, including mechanization, commercialization, consumerism, and rapid urbanization, contributed. Initially, artisans tried to adopt the design of the Western style. That effort failed for domestic artists due to the quality of the product. Later, with the efforts of the Baluchari industry, the new domestic industry began to develop. The ideal combination of modernity adapted to the glorious heritage of domestic industry is needed. New market replicate products need to come into the market based on the modernization of handicrafts and great designs. As a general market strategy, the product should be different and more attractive than other products in cost competitive manner in order to survive in the competitive situation.

In true sense, hand-operated looms are unparalleled in terms of their adaptability and flexibility, which enhances experiments and progress. The power of hand-operated weaving lies in the presentation of creative products, which is difficult to weave in the new age power looms of modern era. Weaving products, especially woven fabrics, have created a special market and brand value in the minds of customers. Different motifs have been used on the fabric using different color designs, which helps in manufacturing products for clothing and upholstery materials. Despite all the benefits of the weaving industry, there is still an opportunity to develop this industry using innovative ideas and technology. Along with traditional cotton and silk fibers, other fibers namely tencel, modal, bamboo, and soya fibers etc. used to add value to existing products and development of diversified the product. The idea of printing yarn can also be implemented to create a combination of different colors in the weaving process compared to the colors of the pieces for different looks. Most weaving products are expensive because the production process is labor-intensive due to hand-cutting and hand-weaving activities. Currently, Indian society is influenced by Western culture; for this reason, the demand for sarees decreases day by day. Women now like to use products such as salwar suits, kurtas, western clothing, men's kurtas, cushion covers, table runners, bags, etc., instead of sarees, which are currently industrial products of Baluchari.



Figure 2. Design developed from the inspiration of Karam Festival during Certificate Course on Baluchari, 2025

Different designers and fashion creators have approached their work in various ways, but the variety of Baluchari motifs is not seen in the same light as depicted in Figure 3. However, at times, some traditional artists have tried to diversify the motif in their designs, but those efforts have failed due to the excellence and aesthetics of the original design. Key consideration points here, that a motif must be very creative and possess aesthetic appeal. There will be demand for it among people at all levels of society. One such example is the motif related to the events of Karam worship, where the Baluchari tradition is attempting to innovate.



Figure 3. Diversification of Baluchari motifs

6. Conclusion

An excellent artwork gives people joy for a while, and one can hold their gaze upon it. That artwork may seek to be seen, felt by touch, or appreciated up close for its useful content. Among the many types of artwork in this world, our topic is the Baluchari Motif. We have seen the transition of the Baluchari motif from Murshidabad to the initial age, all the way to Bishnupur. The impact of the emperor's life is reflected in the Baluchari Saree of Murshidabad, such as smoking hookah, riding horses, hunting scenes, Mughal art, Rajasthani miniature motifs, etc. This was followed by British soldiers, a lone lady riding a horse while holding a flower in her hand, and a Portuguese ship harbouring at a port, which are also depicted, along with social events. This shows that the motifs used at that time are based on some of the events that have occurred in almost all contemporary times. Any event that took place in society may have influenced the Baluchari Saree of Murshidabad, which could have led to new designs coming to market, but they didn't. For various reasons, the Baluchari Saree weaving of Murshidabad was stopped and later relocated to Bishnupur. Initially, the Baluchari sarees of Bishnupur were transformed into a completely new form. Murshidabad emerged from the gentry and began to be defined by practising religious events at Bishnupur. The Vedas, the Puranas, the Ramayana, and the Mahabharata serve as motifs. One thing that should be understood about Bishnupur's Baluchari Saree is that it is based on mythological events, so there is no possibility of any events happening in the present time. There are both good and bad aspects of the Baluchari sarees of Bishnupur. The good aspect is that it is possible to spread Indian religious culture to the whole world.

Therefore, the acceptance of the Baluchari saree from Bishnupur is limited amid few expert weavers. That is why the Baluchari artists from Bishnupur are once again bringing back the Baluchari style of Murshidabad. At present, two types of Baluchari sarees can be found in Bishnupur. However, the tendency to create motifs based on new events cannot be observed among the artists. A closer look at the current designs being produced in the homes of many artists in Bishnupur Baluchari sarees are very few based on any specific events. Different types of events can be represented in a saree. Without a specific event or story, buyers' interest is limited. Due to the lack of innovation in design, buyers do not want to purchase the same saree twice. As a result, the number of Baluchari artists is decreasing day by day, and the new generation does not wish to be associated with this industry. It will be possible to restore the tradition of Baluchari sarees if we can engage artists in a modern way through product diversification, similar to the artisans in the Baluchari industry, in a short time, with less labor and at a low cost, to bring the tradition into contemporary times and generate positive events surrounding Baluchari products, so the Baluchari artists will benefit, the future of the Baluchari industry will be bright, and above all, society will improve.

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Handloom Denim: Linking Handloom with Youngsters

Ashis Narayan Banerjee¹, Tapan Sharma², Animesh Laha³, Sukumar Roy⁴, Utpal Jana⁵

¹Silpa-Sadana, PSV, Visva-Bharati (A Central University), Santiniketan.

²Weavers' Service Centre, Meerut, UP, Ministry of Textiles, GOI,

³Wool Research Association (WRA), Thane, Mumbai.

⁴Govt. College of Engineering & Textile Technology, Berhampore (GCETTB).

⁵Indian Institute of Handloom Technology (IIHT), Salem, Ministry of Textiles, GOI.

*E-mail: animesh.laha@wraindia.com

Abstract:

India is the second-largest country in Asia and ranks first in terms of population growth. The population is from multiple cultures with numerous languages region-wise. In spite of having cultural diversity, most of the population is still tied to our age-old civilisations. Indian civilisations are centuries old and are known for their traditions. Daily lifestyle, food habits, festival celebrations and ethnic cultures are ways to present their culture and unity in diversity. Using hand-woven dress materials is just such a custom, and the materials used in hand-woven dress materials suit us and represent our own character. Approximately 23 % of our country's cloth production is contributed by the Handloom sector. On the other side, the sector is playing a pivotal role towards country's GDP and functioning as key tool for fetching foreign earnings. However, the Sector is facing stiff competition from the counterfeited products on powerlooms as well as the onslaught of fashion changes. As such, production of denim handlooms keeping parity with the fashion changes and customer feedback is going to be a game-changer in the Handloom Sector. Further, eco-friendly handloom denim is the need of the hour and a precious, majestic gift of the handloom sector towards sustainability.

Keywords: Traditions, Handwoven, Handloom, Powerlooms, Fashion Changes, Denim Handlooms, Extra Weft, Sustainability, Natural Dyes.

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1. Introduction

The handloom sector of India is a small-scale type industry where many people earn their livelihood. Several cottage products produced using hand loom are famous across the globe. Handloom is well-known for its rich legacy for its skill & diversity with special art effect by the artisans of the Country. This sector is known for catering to domestic as well as export market and revenue generation, with ample employment possibility just after agriculture. Further, Handloom weavers have been bestowed upon with knack, skill and ability to preserve this century old craft. Government has taken multiple initiative and implemented various schemes to expand the handloom sector (Annual Report 2025-26, Office of the Development Commissioner for Handlooms, MoT, GoI). As per the fourth handloom census report published in the year 2019-20, around 26,73,891 handloom artisans and 8,48,621 allied workers are engaged directly in the sector and earning their livelihood (Handloom census data 2019-20). Thus, the handloom and handicraft sector acts a crucial role in shaping the livelihood and economy of the country as a whole. Key items of handloom products that are produced and value addition is possible in various handloom products mainly for domestic consumption as well as export-oriented products (Mamidipudi, A., & Bijker, W. E. 2018 and Das, A., & Swain, P. K. 2025). Though, current artisans are known for their skill for the regular product manufacturing following the old-style practices to make conventional products. These artisans are very poor in adopting the contemporary art and new technologies. This results in, the young groups and generation are not showing their curiosity to take the century old traditional handloom sector as their livelihood creating real crisis and uncertainty of the industry (Eknath. 2023 and Chakraborty et al. 2026). Thus, the handloom sector is facing difficult times and struggling for its existence. Hence, it is now urgent to identify contemporary needs, enhancement in forex earning, market trend analysis to capture new market so that this century old handloom industry can compete with the industrial products and utilize the supports of globalization (Anjaneyulu et al. 2023).

Production and design patterns of handlooms have transformed drastically with time as the expectations of the current consumers are different in the era of fast fashion and their dress habit. Therefore, conventional products must be diversified and innovative products to be introduced to keep the heritage alive and artisans can survive. Diversified design and product development in the Bengal handloom sector focuses on transitioning from traditional sarees to modern lifestyle products (Gautam et al. 2025). It integrates contemporary trends, improved Electronic Jacquard/Dobby, Computerized Card Cutting mechanisms, and fresh color palettes using natural & eco-friendly dyes to expand market reach for heritage fabrics like Jamdani, Tangail, Baluchari, Garad, Korial, Coochbhear Mekhla, Eri Handlooms and Tassar Handlooms (Das S 2020).

Various conventional handloom products are normally produced using hand loom. On the other hand, the diversified and innovative products with contemporary designs are being produced through technology intervention and skill impartment

(Sahoo et. al. 2016 and Banerjee, A. & Chakrabarti, G., 2020). The handloom products of the country have the advantage of being sustainable, low carbon footprint, no or very minimal energy requirement, and, more importantly, it requires less capital investment. However, in order to adapt to current market conditions and become competitive in the era of fast fashion, product diversification such as handloom denim jeans, sustainable designs have become essential. The diversified design and product development based upon the handloom sector focuses on upgrading traditional techniques to create modern, market-driven products for example, contemporary apparel, home decor, stoles and accessories etc. It aims to bridge the gap between rich, centuries-old weaving heritage (e.g., Jamdani, Baluchari, Benarasi, Paithani, Kanjivaram, Sambalpuri, and Tangail) and modern consumer preferences (Ravivarma, Y.B., & Venkateswarlu, V. 2014, Roy, C., 2017, Datta, D. B., 2018).

Typically, denim is a woven fabric with mostly manufactured in 3/1 twill weave, using coarser yarn of 7 to 20 Ne with GSM ranges from 230 to 600 GSM. Denim is manufactured using indigo-dyed cotton yarn in warp and undyed or white yarn in weft direction with compact structure due to high warp and weft yarn density (Ravivarma, Y.B., & Venkateswarlu, V. 2014 and Park, T. Y., & Kim, M. O. 2018). It is not an easy job to weave denim on manually operated looms. Other available weave structures of denim fabrics are 1/1 plain woven fabric and 2/2 twill etc. The ends and pick yarns of denim fabrics range from 10^s Ne to 20^s Ne and 8^s Ne to 25^s Ne.

The performance such as durability of denim may vary as the yarn quality and GSM varies. In the recent customer need, comfort properties are also considered as key point to consider. For example, stretchable denim is known for the fit related issues and able to retain its original shape and size after removal of external applied forces. The GSM and weave type are important parameter for design consideration to get better comfort, desired property and aesthetic (Kumar et al. 2016 and Chatterjee, et al. 2020). The effect of fabric parameters such as GSM, elastane content and weave architecture of stretchable denim fabrics contributes to the physical, mechanical, properties, and recovery % etc. of the Handloom denim fabrics. Increasing the fabric weight increases fabric physical, mechanical strengths in both warp and weft direction but reduces the air-permeability. As elastane content increased, the flexural rigidity of fabric increased as thickness increases with increase in elastane content (Karthik, T., & Murugan, R., 2017). The yarn type and fabric structure also may affect the comfort properties such as flexural rigidity and air permeability etc. of stretchable Handloom denim.

It is said that, although multiple innovations and technology introduced for denim happened in case of advanced loom, the denim made using traditional hand loom products still enjoy the legacy owing to its look and feel. Handloom denim woven fabric on a shuttle loom has faultiness and variations/imperfections, and these imperfections give the fabric a unique touch and feel. These defects will add different aesthetic to the denim look and create enhanced demand to the hand emerge made handloom products. Further, the fabric made using hand loom are more compact and tighter as compared to denim woven on a modern shuttle-less weaving machine and is therefore much compact in structure. However, the artisans must be well trained art on this for weave fabric using handloom.

In this research a systematic approach has been taken for the development of novel and diversified product - Handloom denim manufactured using Handlooms with good stretchability, comfort and flexural rigidity. The developed denim in handloom brings different texture and look as compared to the existing denim made using power loom, which will increase the demand and enhanced income of the Handloom weavers will be involved in denim manufacturing.

2. Material and Method

2.1 Materials

Cotton yarn with linear density of 10^s Ne open end yarn used in warp and 12^s Ne Ring spun yarn used as weft was procured from market and received in cone form. The yarn was converted into hank for pretreatment followed by natural dyeing. After the completion of dyeing process, the dye liquor is drained and the dyed yarn hank is washed thoroughly this was followed by soaping of the yarn. Then the dyed yarn is sundried. This was followed by warp preparation and weft preparation for denim fabric weaving using hand loom. In some of the cases, to present this product authentic and ecofriendly hand-woven denim fabric the selvedge is specially designed which is made of Ring spun or Open-end yarn as a warp yarn of 10^s Ne to 20^s Ne procured from NHDC Ltd., Kolkata and dyed with natural dye. The hand spun khadi yarn of almost equivalent count for extra weft design and its subsequent, natural dyeing was undertaken inside village clusters while sample preparation.

2.2 Denim Weaving on Handlooms

Denim has been used in the field since 17th century. No power or burning of fuel is required and most of the manufacturing steps are manually thus it is sustainable for hand loom denim products. The mill spun yarn received in cone form was converted into hanks by means of using semi-automatic cone to hank converter machine. As a next step, yarn in hank form was dyed using eco-friendly dyes and size materials were applied to use it as warp. After dyeing and size application, the yarn in the hank form is dried in the sun. The yarn in hank is then reeled onto smaller packages using a manual operated machine, which does not require any electricity. These reels will be used for warping. The reels were mounted on creel and subsequently used to prepare the warp beam. Manual beam warping machine was used for warp beam preparation. This is followed by drawing and denting of the warp yarns. The weaving is done using hand loom with four Heald frames to divide warp yarns into four (4) sets so as to make three-up one-down (3/1) twill weave structure. The handlooms with four-foot pedals and four frames were used to make the denim fabric samples. Fabric was woven in upside down direction and manual mending was done in case of

warp yarn breakage. Fabric construction plays a major role on the hand-woven denim fabric properties. The technical specification is given in Table 1 and Fig. 1 presents the 3/1 twill weave used to develop the denim fabric using handlooms.

Table 1: Technical specification of the denim fabric made using hand loom

Sl. No.	Technical Parameter	Value
1.	Warp Yarn	10 ^s Ne
2.	Weft Yarn	12 ^s Ne
3.	Warp Density (EPI)	65
4.	Weft Density (PPI)	39
5.	Reed Count	24 dents per inch
6.	Loom Specification	120 cm width hand loom

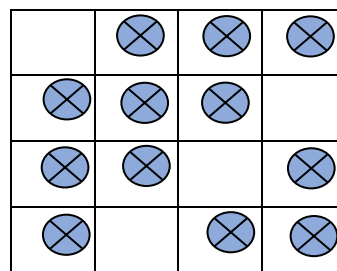


Figure 1: Weave structure of developed denim fabric made using hand loom

Eco-friendly Hand-woven Denim fabric is an option which is quite rare to find in today's world. It was an immense pride in offering authentic eco-friendly hand-woven selvedge denim fabric which was made from actually Ring spun or Open-end yarn as a warp as well as weft yarn of 10^s Ne to 20^s Ne procured and "hand-spun" natural dyed cotton yarns as weft yarn intermittently in order to obtain design effect while weaving, in a wide range of weights and colors were used for weaving Handloom denim. The developed hand loom denim is suitable to use in summer as well as in winter owing to its soft hand feels due to low yarn twist, special texture and natural evenness variation in the yarn across the length.

The yarn linear density and structure have dominant influence on the fabric mechanical, physical and comfort properties such as GSM, thickness, cover factor, drapability, tear and tensile strength, air permeability, abrasion properties. It is also known as key influencing factor for durability of the developed denim fabric sample.



Figure 2 and Figure 3: Handloom Denim with extra weft designs using Jute and colored floating weft

Keeping sanctity of Handloom denim, post loom intervention had been done for various value additions. Introduction of extra weft in the denim was one of the options adopted to impart special look. This denims design was handloom specific and has good potential to link younger generation to handloom sector. The floating weft with yarn combination for example cotton, jute yarn, colored yarn etc. as weft yarn to create more captivating effect with extra weft designs. Jute & cotton (white or colored) yarn used is shown below in Figure 2, Figure 3 & Figure 4, denim with unique look after each wash, as jute being highly bio-degradable, it will be washed out with time, giving worn out look at the end.



Figure 4: Handloom Woven Denim with extra weft using cotton yarn

Inspired from the denim fabric with floating yarn; it was further developed many new designs inspired from it with extra weft on handloom denim as depicted in Figure 5 to Figure 7.



Figure 5



Figure 6



Figure 7

During the training programme at Junia village in Ajmer district, where the yarn was prepared by hand spinning technique (Figure 8 & 9) in the village itself by the women who had left same about 30 years back. Subsequently, yarns were naturally dyed (Figure 10 to 15) by the babul bark obtained from the Babul tree just outside the village. Natural dyeing with onion peel was also undertaken there. Efforts were also undertaken to introduce colors using local flowers towards natural dyeing of yarns. Thus, hand spun natural dyed weft yarn were introduced while weaving of handloom denim for creation of extra weft designs. Thereafter, weaving of denim on Handlooms with extra weft design was performed at the training site.



Figure 8



Figure 9

Figure 8 and Figure 9: Spinning of hand spun yarns.



Figure 10



Figure 11



Figure 12 & 13



Figure 14 and Figure 15

Figure 10 to 15 shows Natural dyeing of weft yarns for extra weft designing.



Figure 16 & 17

2.3. Denim Weaving in Hand Loom:

As a next step, the weaving of the natural dyed yarn into denim fabric with or without extra yarn by the local weavers. Students from various colleges participated actively during the internship program, which has widened the vision of new design creation and led to diversified product inspiration in the field of handloom-based denim production (Fig. 16 to 20).



Figure 18 & 19



Figure 20

Figure 16 to 20: Students internship at Cluster on Handloom Denim Manufacturing with and without Extra Weft.

All these efforts led to the introduction of innumerable designs in the field of Handloom denim. Effective implementation of this training program results in the creation of many yards of handloom-specific handloom denim. This collection was inspired by the regional motifs, architecture, culture, and tradition of myriad no of villages in the state of Rajasthan, with fewer clusters in the state of West Bengal (Figure 20 to Figure 23).



Figure 21 & 22



Figure 23 & 24

Figure 21 to Figure 24: Designs created on Handloom denim

In addition to the introduction in field work, continuous R&D work was conducted in the weaving section of Weavers service centre, Jaipur. Worth mentioning that the introduction of *ghicha* silk was inspired from *meenakari* of Banaras brocade in which *buti* design is introduced within *buti* design as shown in Fig. 25 to Fig. 28 and Fig. 29 presents the yardage of Handloom Denim produced.



Figure 25 & 26



Figure 27 & 28

Figure 25 to 28: Buti design replication on Handloom denim.



Figure 29: Handloom Denim yardage production.

These collections were purchased by various fashion schools and colleges, where they converted the handloom-woven denim to various eye-catching garments and wore them to walk the ramps of fashion shows to display the potential. Weavers Service Centre, Jaipur, had organized a fashion show as events at the Design Resource Centre as well as at various important places in Rajasthan (Figure 30 to 34).



Figure 30



Figure 31



Figure 32



Figure 33



Figure 34

Figure 30 to 34: Participation in Fashion Shows with developed Handloom denim items.

2.4 Performance Evaluation

The denim samples woven on customized Handlooms were first conditioned under standard testing conditions: temperature $27\pm 2^{\circ}\text{C}$ and $65\pm 2\%$ humidity before any performance evaluations and the testing was carried out post-conditioning. The list of test parameters and the standard followed for the test is listed in Table 2.

Table 2: List of Test Parameters and Standard Followed

Sl. No.	Test Parameter Type	Test Parameters	Standard
1	Physical Properties	Yarn Liner Density	ASTM D1907
2		Fabric Construction (EPI×PPI)	ASTM D3775
3		Weight per unit area GSM	ASTM D3776
4		Tear Strength	ASTM D1424
5		Tensile Strength	ASTM D5034
6		Elongation	ASTM D5034
7		Crease Recovery	ASTM D1295
8		Fabric Thickness	ASTM D1777
9		Dimensional stability	AATCC 135
10		Bending Length	ASTM D1388
11	Comfort Properties	Water Absorbency	ASTM D4772
12		Horizontal Wicking	AATCC 198
13		Air Permeability	IS 11056
14		Water vapour permeability (WVP)	ASTM E96
15	Fastness Properties	Fastness to Washing	AATCC - 61-2A
16		Fastness to Rubbing (Dry and Wet)	AATCC - 08
17		Fastness to Perspiration	AATCC -15

3. Result and Discussion

Table 3 presents the physical properties of the developed handloom samples. The table presents the values of warp and weft yarn linear density (Ne), fabric construction ((EPI×PPI), GSM, Tear strength, tensile strength, elongation %, crease recovery, thickness, dimensional stability and bending length etc. The values are average of 10 readings of each test parameters as presented in the table below. From the below table it is seen that the linear density of both warp and weft yarn are 9.7 Ne and 11.5 Ne which confirm that incumbent yarn is confirming the supplier specification.

The thread density (EPI × PPI) of the fabric is 67 and 42 respectively. The GSM of the fabric is 272 with very good mechanical properties: tear strength of 4.85 kgf (warp wise) & 3.09 kgf (weft wise) and tensile values of 69 kg (warp wise) & 35 kg (weft wise), dimensional properties of 3.45 % (warp wise) & 2.76 % (weft wise). The fabric thickness is 1.11 mm and bending length of 3.8 mm & 2.5, respectively.

Table 3: Physical Properties of Handloom Denim Samples

Sl. No.	Test Parameter		Unit	Value
1	Yarn Linear Density	Warp	Ne	9.7
		Weft		11.5
2	Fabric Construction	EPI	Count	67
		PPI		42
3	Weight per unit area	GSM	g/m ²	272
4	Tear Strength	Warp Wise	Kgf	4.85
		Weft Wise	Kgf	3.09
5	Tensile Strength	Warp Wise	Kg	69
		Weft Wise		35
6	Elongation	Warp Wise	%	19
		Weft Wise		17
7	Crease Recovery	Warp Wise	%	122
		Weft Wise		127
8	Fabric Thickness		Mm	1.11
9	Dimensional stability	Warp Wise	%	3.45
		Weft Wise		2.76
10	Bending Length	Warp Wise	Mm	3.8
		Weft Wise		2.5

Table 4 represents the comfort properties such as water absorbency, horizontal wicking, water vapor permeability, and air permeability etc. of developed handloom denim samples. The average of 10 readings of all the test parameters in comfort properties of the handloom denim samples. From the data it is clear that the developed sample is very comfortable owing to its very good air permeability (40.25 cc/sec/cm) which indicates that it will give excellent ventilation effect, water vapor permeability of 0.00108 g/m²/s, this will result in faster water vapor transportation in case of sweating and will give the wearer comfort. The samples also have excellent wicking properties and water absorbency which will result in faster liquid transportation. Thus, it can be concluded that the developed sample will give better comfort to the wearer.

Table 4: Comfort Properties of Handloom Denim Samples

Sl. No.	Test Parameter	Unit	Value
1	Water Absorbency	%	50.89
2	Horizontal Wicking	mm ² /Sec	5.96
3	Water Vapor Permeability (WVP)	g/m ² /s	0.00108
4	Air Permeability	cc/sec/cm	40.25

Table 5 presents the color fastness: fastness to washing, fastness rubbing (dry and wet) and perspiration fastness of developed handloom samples which was dyed with natural dye. From the table it is clear that the developed sample shows moderate fastness properties for example washing fastness of 3, fastness to dry rubbing 3-4, fastness to wet rubbing of 2-3 and fastness to perspiration value of 3-4.

Table 5: Color Fastness of Handloom Denim Samples

Sl. No.	Test Parameter	Value
1	Washing Fastness	3
2	Fastness to Dry Rubbing	3-4
3	Fastness to Wet Rubbing	2-3
4	Fastness to Perspiration	3-4

4. Conclusion

It is being said that the Indian handloom sector is an amazing convergence of utility, art, economy, and identity. Its revival calls for a comprehensive effort of technological support along with cultural sustenance, economic empowerment along with policy shift, and upholding tradition & innovation. Its perpetuation has nothing at all to do with saving a mode of production, but with upholding a centuries-old cultural legacy which has been responded, hitherto a sustainable development, decentralized economies, and heritage perpetuation. Promising its prosperity is as much a policy need as a national duty and an opportunity of re-writing the developmental route of India on its oldest yet unshakable string.

The outcome of this study established the developed handloom denim fabric is suitable for summer dress applications such as jean pants, jean skirts, and jean shirts for its comfort properties and cooling effect. Thus, it will contribute to the contemporary product development and meet the consumer need especially the young age category. This will create a new avenue to the handloom sector and will rejuvenate the sector through better and new business opportunity creation. During the above endeavor, many designers take inspirations and introduce handloom denim. Latest in the series is taken initiative from "Book-A-Loom", who had taken up the production of contemporary denim jackets, trousers and shorts.

Further, it was observed from the test results of the developed samples are holding required tear as well as tensile strength and dimensional stability. It also found that the comfort properties such as air permeability, Water Vapor Permeability (WVP), wicking property etc. are satisfactory which contributes towards wearer comforts. Lastly the fastness properties to wash, rubbing and perspiration etc. matching the basic requirements. Eventually, it may be inferred that apart from desired technical parameters; the Handloom denim woven fabrics not only rejuvenate the forgotten art of spinning of khadi yarns, handloom weaving and natural dyeing but also strengthened the entire value chain of Handloom sector in the afore said clusters.

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Co-creation to expand the product lines of the Geographical Indication (GI) tagged Varanasi wooden toy craft by Kaashtha Dozi and global prospects for Indian Handicraft

Ayushi Sinha

Founder, Kaashtha Dozi

H.No.06, Anand Vihar, Amausi, Sarojini Nagar, Lucknow, U.P., India

E-mail: sinha16ayushi@gmail.com

Abstract:

In the ever-evolving world of fashion, it is not only wise but imperative to inspire the budding designers and seasoned fashion industry professionals to cherish unparalleled traditional crafts of India, specifically the GI tagged crafts which are quite distinct due to their exclusive place of origin and long-established methods, making them highly prized globally. Today with the rise of handicraft-based fashion brands, it is an optimal time for integrating the antique allure of the GI tagged crafts with the modern merchandise, in a manner where there is a thought around reducing commercial waste along with preserving the handicraft legacy, with its meticulous artisans and finding ways to work ethically with them. The study is based on exploratory research to elaborate the expansion of product lines of Varanasi wooden toy craft by the brand Kaashtha Dozi which has introduced a novel surface design technique for textile surface using the authentic GI tagged craft on fabric surface by the method of Zardozi for the attachment of the hand-painted wooden embellishments. Also, the ways in which the Indian handicraft market is expected to boom internationally with reference to the global consumer shift towards ethical fashion. The study also aims to gain an insight about the level of consciousness and likeness modern day consumers living in other countries, outside India have towards the traditional Indian crafts in an international space and how they resonate with the idea of ethical fashion and Indian handicrafts that go hand-in-hand due to the age-old sustainable practices involved in their processes. Empirical data have been taken from the hands-on experience, discussions held in the process of co-creation with the GI tagged craft artisans and from a survey conducted on the international consumers belonging from different age-groups living in countries other than India.

Keywords: Craft Intervention, Geographical Indication, Handicraft Export, Kaashtha Dozi, Varanasi wooden toy craft.

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1. Introduction

Traditional crafts have been an integral part of Indian culture, practised since ages, they are what makes India and each of its states extraordinary and indelible. Craftsmanship is where time pauses, modernity takes shape, and what once seemed lost is made tangible through the hands of artisans. It is a quiet dialogue between material, memory, and emotion, where every creation bears the imprint of tradition and care. In this space, objects become vessels of meaning, connecting the past with the present. In an era defined by speed and mass production, a quiet yet powerful movement is gathering momentum in Indian design—one rooted in tactility, patience, and soul. At the heart of it lies craft: not as nostalgia, but as the foundation of a new kind of luxury (Shah, 2025). Young designers are not only becoming the torch-bearers of slow fashion but also launching handicraft-oriented brands with pride, to take the historical legacy forward. Present-age designers who understand conscious fashion and repercussions of fast fashion are quite intentional about sustainability. They are creating the new normal where artisans are uplifted and given equal say while preserving the traditional crafts through modern implementation. When it comes to the GI tagged crafts which themselves signify the authentic craftsmanship of a specific region it is of utmost importance to preserve and maintain the core design elements and native process of the craft. Integrity becomes one of the most important elements when the consumers are promised a product with genuine craft, which forms the very base of ethical fashion. In case of GI tagged crafts it becomes essential to give the indigenous craft a distinct identity that distinguishes the products from the imitations and cheap unauthentic dupes. In India, Geographical Indications registration is administered by the Geographical Indications of Goods (Registration and Protection) Act, 1999 which came into force with effect from 15th September 2003 (ariyalur.nic.in, 2025). GI tagged handicrafts in India are famous for their recognizable and unequivocal attributes. They are a true representation of India's skilled craftsmanship and the unmatched cultural legacy. Some of the notable GI crafts of India include Banaras Brocade from Uttar Pradesh, Madhubani Paintings from Bihar, Pochampalli Ikat from Telangana, Chanderi Sarees from Madhya Pradesh, Kanchipuram Silk from Tamil Nadu, Kota Doria from Rajasthan, Kasuti Embroidery from Karnataka, Kullu Shawl from Himachal Pradesh, Nakshi Kantha embroidery from West Bengal, etc., to name a few.

An understanding of the fashion brands working with GI tagged handicrafts and their prospects for global trade in the present time is much required. India provides a very large market for GI-tagged goods, as it takes a commanding position on the international arena, being the largest democracy, leader of global South, and lending a patient ear to every country. India's traditional rich culture, and its enhanced soft power globally, can influence GI output as an export of our culture. An offshoot of this can be the authentic tasting of the GI experience by foreign buyers, which can attract them through tourism, to visit the regional places in India to see the wonder of India, and create a robust international cultural exchange to boost the local economy (Dadoo, 2025). At Kaashtha Dozi, Varanasi wooden toy craft which is a GI tagged craft has been the foundation and an

inspiration to begin with. Shri Rameshwar Singh, a National Craft Awardee and a master craftsman of this craft having decades of experience was the first one to engage in the process of expansion of the product line with Kaashtha Dozi, as it was an experimentation to bring a product of lifestyle accessory into textile. His role has been very crucial in terms of working on the vision of creating hand-painted wooden embellishment to be attached onto the fabric surface and implementation of a concept into a functional design. It becomes an exemplary way to co-create and innovate the way in which a craft is seen and utilized, which is mutually beneficial for the designer and craftsman. As one has an intention and the other is the very source of realization.

2. Methodology

The principal aim of the study was to get factual insights about the GI tagged handicrafts of India and document the initiative led by the author-owned handicraft based brand Kaashtha Dozi as it practices co-creation with the artisans of Varanasi wooden toy craft since 2017 which started as a research based design collection and later launched in 2023 as an official brand. The work comprises a compilation of the data collected in the process of creating a new product line of Varanasi wooden toy craft with its introduction in textiles as a novel surface design technique. Primary data is a synthesis of in-person discussions and experiences gained with the artisans while developing the product along with an online descriptive survey conducted on the international consumers of Indian handicraft based products from various countries including the USA, Australia, Canada, Ireland and Sri Lanka with total 21 participants to gain a perspective on the global prospects of Indian handicraft based products. The secondary data was collected from a review of related research papers, articles and other legitimate online sources. To derive a perspective, a qualitative research approach was employed for a deeper understanding of the subject. As a fashion educator, designer and founder, the author has been a craft enthusiast and has always strived to associate meaningfully with the craft sector. This initiative is focused on providing a global platform to such praise-worthy GI crafts of India which hold an immense potential in the global luxury market, which at present comprises consumers that are not only quality driven but also conscious in terms of their fashion choices and the impact it is going to have on the environment.

3. Case Description

3.1 Co-creation of an innovative surface design technique Kaashtha Dozi using Varanasi wooden toy craft

Kaashtha Dozi as the name suggests derives its origin from the ancient wooden craft of Varanasi. In this GI tagged craft the artisans intricately hand-paint the traditional motifs on the hand carved wooden toys or articles. Tracing this genealogy to the 17th century, some suggest that the community was initially patronized by the Mughal emperors and the British for ivory carving, but the craftspeople had to move on to wood carving when the government of India banned the sale of ivory in 1986 (Nighoskar, 2021). The primary products of this craft includes toys including nested dolls, rattlers, table-top accessories, home decor, religious figurines and other lifestyle products which are painted elaborately in multiple bright colors giving this craft a striking identity and timeless charm. The prominent design motifs used in this craft are birds including parrots and peacocks, human figurines, animals like elephants, horses, camels and other flora-fauna along with objects like miniature rickshaw, auto, trucks and Hindu religious symbols like Swastik and Om, deity idols, temples, swing etc. Deriving an inspiration from this colorful craft, wooden motifs were designed keeping intact the core visual identity of the craft by selecting themes related to Indian culture and keeping color palette original to the craft, the motifs were created in the form of hand-painted embellishments, carved and developed by the artisans following the traditional process. The silhouettes of the collection have been designed keeping in mind the modern women and so it caters well to the craft enthusiasts who like to incorporate traditional crafts in their day to day life in meaningful ways. With regard to its usage on fabric surface, a hole was pierced horizontally through the centre of the wooden embellishment for a secure attachment onto the fabric surface. Another GI craft which played a supporting yet significant role is Lucknow Zardozi which gave a tangible reality to Kaashtha Dozi, which is world famous for its regal appeal, a textile embellishment craft, so rich and classic that it has been used by the royalty since ages. Lucknow Zardozi, flapped its wings during the Nawab-Mughal era, where at the royal court, all one can see was elite and clergy in luxurious drapes and sherwanis adorned with fine embroidery using real gold, silver and precious gemstones, hand-embellished by the skilled Zardozi artisans of the city. The central design motifs in Lucknow Zardozi include flora and fauna, architecture inspired geometric motifs, paisley motifs etc. In the process of Kaashtha Dozi, the technique of Zardozi is used sans 'Zar' i.e., instead of using traditional gold/metallic thread for embroidery, surface design is done using the hand-painted wooden embellishments from Varanasi. Once wooden motifs made using the authentic Varanasi wooden toy craft are ready, they require to be sewn on the fabric surface with great precision in terms of orientation, placement and design. Then comes the great craftsmanship of Zardozi artisans of Lucknow who are skilled in this craft for centuries. With the help of traditional adda set-up using the aari needle the wooden embellishments are secured well onto the fabric surface beautifully. Hence, Kaashtha Dozi which literally means 'sewn wood' gets the legacy of two GI tagged handicrafts i.e. Varanasi wooden toy craft and Lucknow Zardozi craft combined.



Figure 1: A waistcoat with Kaashtha Dozi work as a surface design technique (Source: Author)

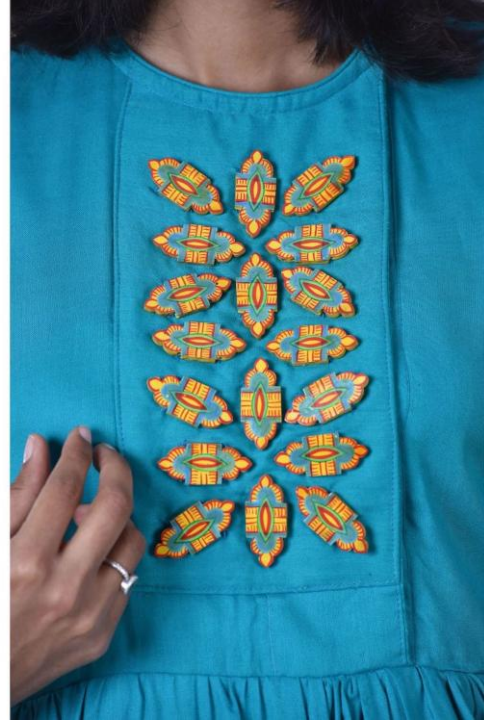


Figure 2: A dress with Kaashtha Dozi work as a surface design technique. (Source: Author)

As in the Figure 1 and 2, Kaashtha Dozi work can be seen on the waistcoat and dress from a collection and observed how tastefully the motifs are placed in an alignment which shows the years of practice and mastery that artisans hold in their craft sector, that when they experiment with a new material in an age-old craft, they can accomplish the desired results precisely the way a designer envisions it. This illustrates the beauty of craft intervention, as in where a designer who carries the artistic vision combines it with that of the finesse and expertise of the craftsman in a craft, the product that comes out of that synthesis is always stunning as it brings both the traditional touch along with an ingenious creativity. At the moment the need of the hour is to encourage more and more young minds in fashion to recognize and realise the potential and uniqueness of the traditional crafts of our country, as in every Indian state has numerous craft clusters showcasing the ethnic identity, resources and culture in the form of exquisite handicrafts, which holds the potential to be a globally cherished and recognised for their distinctiveness which can not be found anywhere else.

4. Result and Discussion

4.1 Socio-cultural impact of the craft intervention on the artisan community

One of the main reasons that Kaashtha Dozi came into existence was the adaptable and inquisitive demeanor of the master craftsman Shri Rameshwar Singh of Varanasi wooden toy and lacquerware craft, who not only supported the initiative but whole-heartedly participated into the process of devising a method for the implementation of the craft onto the fabric surface. He made sure that the wooden embellishments are created as per the given designs, including the motifs, colors and size. Similar experience happened with the Zardozi artisans of Lucknow where they were asked to replace their traditional material of Zardozi like beads, metallic thread, etc., with the wooden embellishments and multiple ply cotton thread to secure it. They were more than excited to implement the same with so much precision in terms of orientation and the placement. People from all around the neighborhood at times gathered and stopped by out of curiosity about the new material being used in the craft with the same old set-up and tucking technique and they were in awe, calling it a truly unique intervention. It really shows and explains the willingness of the craft community to imbibe new ideas into traditional craft. Artisans are very inquisitive in terms of learning innovative ways to improvise and add more product lines. The only thing that they require from the designer community is a long-term association and a dedicated set-up where they can work together as a team creating masterpieces and shattering all the limits of creativity in unison. As the Indian artisan community is inherently gifted and dedicated, all they deserve from the fashion world is their due share of appreciation for the brilliance they bring each day through their craft.

4.2 Challenges in the GI craft intervention

Despite growing recognition, for many artisans the GI tag exists only as a label and most of their products remain confined to their regions, struggling to access wider markets. The challenges are deeply interconnected – limited awareness, weak market linkages, digital exclusion, and uneven institutional support. Also many consumers, both in India and abroad, are still unaware of what a GI tag represents, allowing mass-produced imitations to flood markets and undercut authentic crafts (Dangwal, 2025).

The major challenging area initially in Kaashtha Dozi's expedition was finding the willing artisans and collaborating with them as per the creative vision, who were open to experiment and join the initiative to create something different from what they have been doing since ages. The vulnerability of wood as a material to be used on textile surfaces and educating potential consumers on the maintenance of the wearable products was another crucial area along with the acceptance of a different product line of an existing craft by the market. There is a need for better management for the craft sector in which the government is playing a key role in identifying craft belts and developing such areas with better planning, training and awareness. According to official estimates, India is home to 7 million artisans. However, data from unofficial sources indicates that the artisan strength is as high as 200 million. The wide nature of this range and disparity in the number is due to the informal and unorganised character of this sector (ibef.org, 2021). The UP government's One District, One Product Programme aims to encourage such indigenous and specialized products and crafts. There are products in UP that are found nowhere else – like the ancient and nutritious 'Kala namak' rice, the rare and intriguing wheat-stalk craft, world-famous chikankari and zari-zardozi work on clothes, and the intricate and stunning horn and bone work that uses the remains of dead animals rather than live ones, a nature-friendly replacement for ivory. Many of these products are GI-tagged, which means they are certified as being specific to that region in Uttar Pradesh. Many of these were also dying community traditions that are being revived through modernization and publicization (odopup.in, 2025). Such initiatives by the government are the need of the hour which focus on the development of the artisan community and popularising their praiseworthy crafts.

4.3 Importance of GI crafts and their upliftment by the fashion brands

Recently there has been an upsurge of the designer brands selling products which are designed keeping in mind the incorporation of the authentic GI crafts which not only enhances the aesthetic appeal but at the same time add a lot of depth and culture in their merchandise whether it is textile, home decor or other functional accessories. Geographical Indications reflect a system of production anchored to a territory and its local resources, and as such they can contribute to a process of adding value to the origin and its impact in terms of local sustainable development, by combining the economic and heritage dimensions. This involves considering a number of technical factors to implement and manage this at the local level. Because of these reasons the registration mechanism of GIs need to adopt the "Linking people, places and products" approach (Choudhary, 2024). GI tags help preserve an entire heritage, and when we support them, we help sustain ecosystems of culture and economy. These tags protect traditional arts and crafts by legally linking them to their specific geographical origins and unique qualities. They make sure that artisans who have preserved these practices for generations receive credit and visibility. Without this recognition, such crafts are often mass-produced or falsely misrepresented (refash.in, 2025). Young designers are wholeheartedly embracing the rich heritage of India and bringing unique solutions with their design ideas that are not only a tribute to our magnificent history of art and crafts but also it brings back the confidence of the artisans when their work shines brightly in global market and they are treated ethically, are given equal opportunities to share their craft wisdom with the whimsical yet industry revolutionizing ideas. Here the inquisitiveness and decades of experience go hand in hand which enables both the designer and the craftsman to bring their best on the table and create together where designers brings novelty in terms of material, color, and form while the artisan maintains the soul and traditional identity of the craft by making the use of age-long techniques, tools and process of their work. There are many Indian brands that work with GI crafts to bring that traditional handmade charm and element of exclusivity in their collections. Some notable brands working with authentic Indian handicraft include Gaatha Handicraft, Okhai, iTokri, MeMeraki, Tilfi, GiHeritage, etc. The similarity among these brands is that they are using GI crafts from the different states of India and giving them a platform, bringing them to the mainstream consumers of different generations. Especially in the way these brands promote their handcrafted products using story-telling on social media and presenting the products in such a way that it brings in the consumers not only from the Gen X but also from the Millennials and Gen Z. These brands are playing a pivotal role in making people aware about the profound role an artisan plays in creating a handmade product and how much of a human effort, dedication and years of expertise it takes to create it.

4.4 GI products and global market shift toward ethical fashion

Geographical Indication provides credibility to the tagged handicraft products and in global luxury space, heritage crafts with such reliable authentication are always sought after. Countries have potential to monetize their GI tagged products thereby having complete control over the cost and pricing of the commodity native to their region. This allows for fair trade practices along with providing employment to individuals who are involved in the process (straitresearch.com, 2025). Currently India has a treasure trove of promising brands in handicrafts working specifically with GI crafts that can prominently stand-out in the international market. People don't buy products; they buy stories. And India has over 600 such stories waiting to be told in the form of GI-tagged products (Khetarpal, 2025). With the exquisite and highly covetable crafts being practised in India for centuries, it is a potentially favorable situation as global demand for authentic and eco-friendly products is ever increasing among craft enthusiasts. As of 2024, the estimated worth of the Indian handicraft market stands at approximately \$100 billion, with projections indicating a sustained growth rate of around 10% annually through 2027 (Dataverse E.inc, 2024). Prada, a luxury fashion label, recently came under the lens as the high end clothing brand unveiled the GI-protected Kolhapuri chappal from the state of Maharashtra in India as "leather sandals". This move faced severe backlash from the Indian government as the iconic footwear has centuries old heritage and is made painstakingly by local Indian artisans. Prada on facing the ire of the Indian population soon released a statement stating the footwear's Indian connection. The Kolhapuri chappal has an annual production volume of 600,000 pairs with more than 30% being exported abroad (straitresearch.com, 2025). The power of a GI product can be seen here. Fashion today is not only about status but also about provenance. Consumers seek products that tell stories, that carry heritage, and that align with sustainability values. India's traditional crafts—often eco-friendly by design—fit neatly into this shift. The global move towards ethical sourcing and fair trade has amplified interest in Indian handiwork,

positioning it as both culturally rich and environmentally responsible (Malladi and Govind, 2025). When a person buys an artisanal product they not only decorate their space but also contribute to the livelihood of the artisan community which is working hard and with so much emotion to bring such splendid creations in reality.

4.5 Global consumer perspective on the Indian Handicraft

The conducted descriptive online survey helped to get an insight about the level of consciousness and likeness modern day international consumers have towards the traditional Indian crafts and Varanasi Wooden Toy Craft's new product lines introduced by the brand Kaashtha Dozi. A total of 21 craft enthusiasts participated in the online survey from the countries namely United States of America, Australia, Canada, Ireland and Sri Lanka. They were asked if they previously owned any handicraft product from India for which the mentioned products belonged to Rajasthan's Bandhni and Block Print, Lucknow's Chikankari, Gujarat's Lippan, Kashmiri shawls, Banarasi Sarees, Meenakari, Leather Mojri, Terracotta items, Kantha embroidery work, Mirror work, Patola and Blue Pottery crafts respectively. As shown in Figure 3, the participants were from different age-groups with the majority belonging to 30-40 years old.

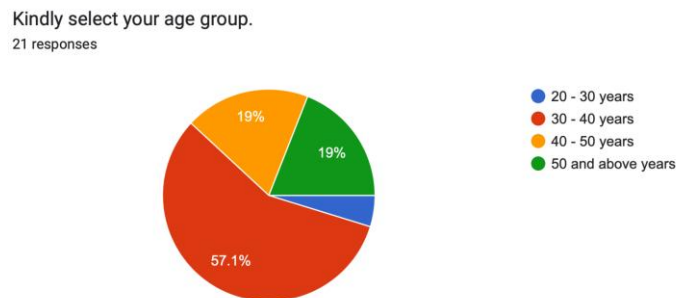


Figure 3: Age groups of participating international consumers of traditional Indian crafts (Source: Author)

On the basis of appeal and experience 81% of the participants responded positively and 19% were not sure as shown in Figure 4. While in response to the resonance of the consumers with the thought that Indian handicraft based products have a timeless luxurious appeal to them it was a 95.2% agreement, as shown in Figure 5.

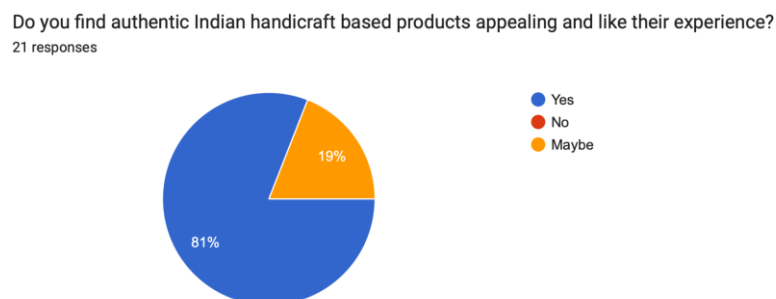


Figure 4: Likeness of appeal and experience of Indian handicraft products surveyed (Source: Author)

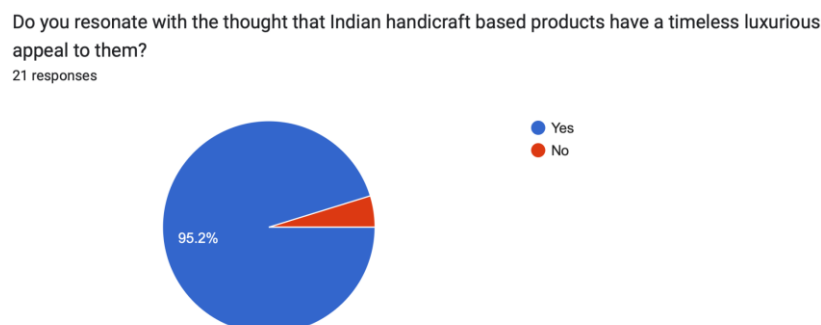


Figure 5: Resonance of participants with the timeless luxurious appeal of Indian handicraft (Source: Author)

In response to whether they would like to have Indian handcraft-based brand's availability in their area, 95.2% of the respondents agreed as shown in Figure 6, and in response to the sustainability factor of the Indian handcraft products, 95.2% of the respondents were in favour as shown in Figure 7.

Would you like more Indian handcraft based fashion/ lifestyle accessories brands to be available in your area?
21 responses

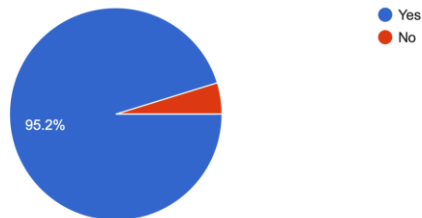


Figure 6: Seeking the availability of Indian handcraft brands near their area surveyed (Source: Author)

Do you think that Indian handcraft based products are sustainable?
21 responses

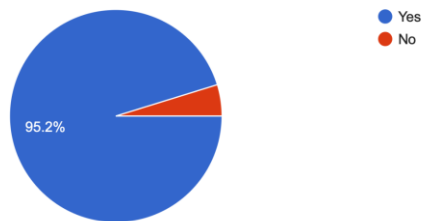


Figure 7: Sustainability factor of the Indian handcraft products surveyed (Source: Author)

The data collected on the Varanasi wooden toy craft showed 76.2% awareness about this GI craft of India and 76.1% reverted likeness toward the waistcoat from the Kaashtha Dozi brand which showcases the novel application of the Varanasi wooden toy craft in clothing as shown in Figure 8 and 9 respectively.

Are you aware of the Varanasi Wooden Toy Craft (GI tagged) of India?
21 responses

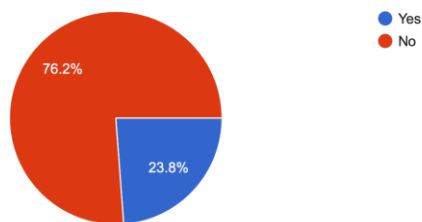


Figure 8: Awareness about the Varanasi wooden toy craft (GI tagged) surveyed (Source: Author)

What do you think of this waistcoat made using the authentic Varanasi Wooden Toy Craft's surface embellishment by the brand Kaashtha Dozi?
21 responses

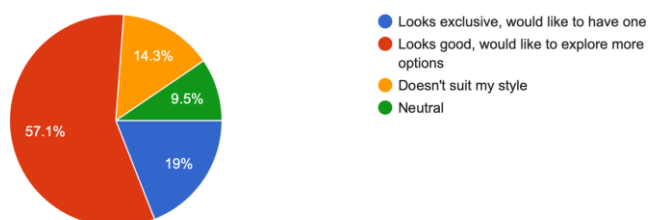


Figure 9: Likeness of the Kaashtha Dozi's novel application of the Varanasi wooden toy craft surveyed (Source: Author)

In response to the recommendation regarding other useful everyday products that participants would like, incorporating the authentic Varanasi wooden toy craft, the participants responded with various lifestyle products including handbags, clutches, home decor items, kitchen items like coasters, trivets, placemats, platters for spoon holders, table-top accessories and for the clothing they wanted to see the craft in sarees, shawls, shrugs, menswear kurta and introduce subtle design details on sleeves, etc. Overall remarks on the introduction of the new product line of Varanasi wooden toy craft by Kaashtha Dozi included appreciation for the usage of an authentic craft in a fresh manner yet sustaining the essence and soul of the craft, along with some participants, a bit apprehensive about the maintenance of the craft related products in the long run.

5. Conclusion

The study may conclude that India is quite an endowed country in terms of cultural heritage handicrafts and holds a significant number of GI tagged crafts across the nation. The artisans are quite meticulous and talented in their craft. The global demand for handicraft products is high and increasing at a fast pace over the years, though with a limitation that this study was exploratory with qualitative survey data. The consumers are adopting ethical fashion and are conscious about their choices, emphasizing on premium quality and exclusivity over quantity. All of which is a great contributor to an advantageous edge for India to tap into the global export market with enhanced marketing, branding and positioning skills. The government is readily working in this sphere by bringing in initiatives directed to enhance the growth of the craft sector and promote export of handicraft in the international market. It's time the creative designer community of India to come forward and re-invent the definition of generational legacy and the stories these venerable GI crafts of India hold. As technology advances in the Artificial Intelligence age, the timeless charm of authentic handcrafted products is testifying itself as a classic luxury to behold and nurture for ages to come.

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