

METHODOLOGY

Operational Definitions

Evolution:

A study of chronological changes in traditional wood block making craft. It includes changes in design, aesthetics, cultural context, customer demand, socio-economic conditions, adoption of new methods, resources, technologies, and its impact on evolution.

Promotion:

It refers to the efforts to make the wood block craft more noticeable to target audiences with the aim to increase interest in, and demand for, the wood blocks, using various promotional techniques. It also refers to the efforts to improve the capacities of the craftsmen to enhance their functioning.

Craftsman:

A person who is skilled in the making of wood blocks which typically involves creative and manual labour and uses specialized equipment and techniques to make them usually by hand to a marketable level of workmanship.

Privileged Observer:

An individual or group who possesses certain advantages that provide them with a unique perspective into a particular situation or phenomenon. These observers typically have access to privileged information, resources, or positions that allow them to understand and analyze a situation more comprehensively than others. Their privileged status often springs from factors such as social status, expertise, authority, or specialized knowledge, enabling them to observe and interpret events with a higher degree of understanding or accuracy.

Chapter 3

METHODOLOGY

Area of research

The elements of the study included Documentation, Socio-economic study, Capacity building, Social Media campaigns, Craft evolution, Craft promotion to provide a comprehensive and well-rounded approach, covering not only the technical aspects of crafts but also their broader societal and economic implications.

Type of research

To explore the historical roots of the craft, understand the current practices through ethnographic methods, and provide a comprehensive description of the craft's current status. Historical research, Ethnographic research, and Descriptive research was conducted. Additionally, applied research was conducted to play a role in proposing practical strategies for the promotion and sustainability of the wood block making craft in Pethapur.

Research Questions

What is the historical origin of the wood block making craft in Pethapur?

How did 'Saudagiri' prints contribute to the development and trade of this craft over the years?

What is the current socio-economic status of the wood block craftsmen in Pethapur?

How does their socio-economic status impact their craft practices and livelihoods?

What significant changes have occurred in the techniques and materials used in wood block making over the years in Pethapur?

How have external factors, such as market trends or technological advancements, influenced these changes?

What are the ergonomic aspects of the work patterns employed by wood block craftsmen in Pethapur?

How do the craftsmen adapt their work environment to enhance efficiency and well-being?

What are the current skill levels and training needs of wood block makers in Pethapur?

What opportunities exist for capacity building, skill enhancement, and training programs for these craftsmen?

What strategies can be employed to promote the wood block making craft from Pethapur on local, national, and international platforms?

How can collaborations with artisans, cultural organizations, and marketing channels be leveraged for effective promotion?

Research Approach

The main purpose of the research was to understand the evolution and undertake initiatives for promotion of wood block making craft of Pethapur, which is on the point of extinction. The goal was to perform a comprehensive examination of how wood blocks were manufactured, and consumed in relation to man, material, method, machinery, and merchandise over the period. The analysis of historical and existing records would reveal the elements that influenced the growth and decline of the craft and craftsmen, allowing the researcher to better analyze their difficulties and expand their opportunities to enrich the craft for its continuity. Therefore, a mixed method approach was used to achieve the objectives of the study. The research consisted of historical research, ethnographic research, applied research and descriptive research. The data was thus collected using a multi-methodological approach to gain a more comprehensive understanding of the research questions. It enabled triangulation, in which results from many methodologies were compared and examined to present a more solid and trustworthy interpretation of the data. By addressing any biases or limits linked to a single method, this strategy offered a chance to improve the validity and dependability of the research findings. Additionally, it enabled the researcher to investigate many angles of the research subject, record various viewpoints, and produce more subtle conclusions.

3.1 Preliminary Research

3.1.1 Pilot study

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3.2 Evolution of the craft and craftsmen

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3.2.2 Primary research

3.2.2.1 Sample selection

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3.2.2.4 Data analysis and presentation

3.3 Promotion of the craft and craftsmen

3.3.1 Planning of Promotion Strategy

3.3.2 Promotion of the craftsmen

3.3.2.1 Capacity building

- A) Ergonomic analysis
- B) Exposure visits cum exploration
- C) Awareness Workshops

3.3.3 Promotion of the craft

3.3.3.1 Increase visibility

- A) Do-it-yourself hand block printing kit
- B) Craft Demonstrations

3.3.3.2 Create Digital Identity

- A) Development of calling cards
- B) Development of website

3.1 Preliminary research

The present research is based on the suggestions mentioned in Master's research titled "Traditional Knowledge of wood block making craft: a case study" conducted in 2010-11 by the investigator herself. The study then was aimed towards studying the life history of the master craftsman Sh. Maneklal Trikamlal Gajjar and the spread of craft through his efforts.

The Master's research was done with a focus on single craftsmen while the present study takes into consideration the entire community of wood block makers residing in Pethapur and the changes in the craft over a period of time post-independence with special reference to *Saudagiri* trade. The evolution of both the craft and craftsmen was researched in context to historical and cultural elements from various literary sources and stakeholders involved in the craft. The possibilities to promote the craft and craftsmen for their sustainability were explored to fill the need-gap.

3.1.1 Pilot Study

A preliminary field survey and literature review about the craft and the craftsmen was conducted to gain an understanding of the prevailing status of the craft. The primary information was gathered from the craftsmen presently engaged in this craft during December 2017 to March 2018. The practicing craftsmen were identified by the snowball sampling technique though they lived in the same village.

A pilot study to gauge the present situation helped in consolidating the historical and cultural elements that contributed to the changes in craft and the need gap for promotion of the craft.

Based on preliminary study, a conceptual framework was formed. It represented each component of the research. Figure 3.1 shows the connections between the various components across the specified time which was the period post-independence. It demonstrates how the development of the craft was influenced by historical and cultural factors. Based on evolution, crafts were to be promoted. To continue and preserve the craft, the promotion of crafts and craftspeople was necessary.

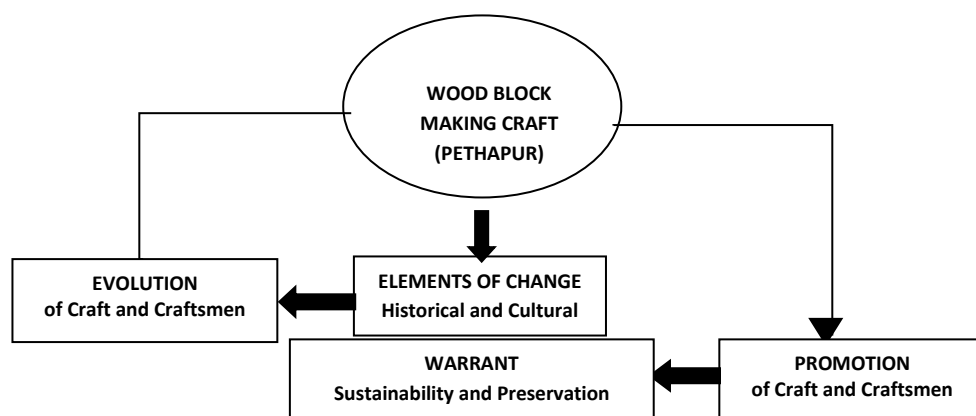


Figure 3.1: Conceptual framework

3.1.2 Research design

The research design was constructed to explain the process flow of the study. The sample size, method and tools used, to achieve the objectives, analysis of data collected; was presented in the form of flowchart shown in Figure 3.2. Various methods such as exploring historical records, archival documents, relevant literature, case studies, direct and participant observations, semi-structured interviews, document analysis, comparative analysis and visual documentation were employed to gather data and answer the research questions.

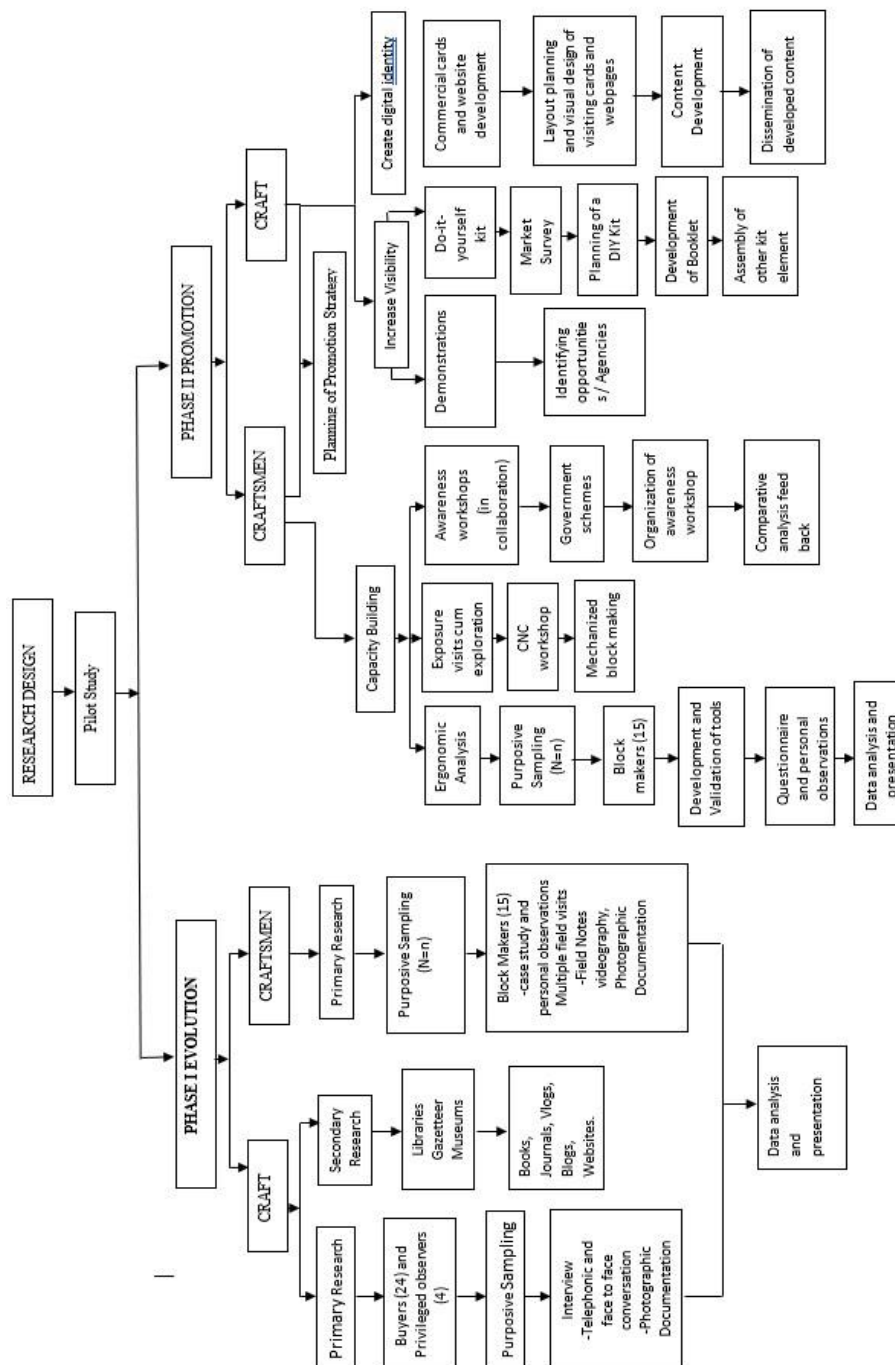


Figure 3.2: Research Design

3.2. Evolution of the craft and craftsmen

The evolution of the craft and craftsmen was studied by assembling evidence from both primary and secondary sources. The changes that occurred in craft over a period of time were studied considering the influence of historical and cultural elements. The period of study was divided into two parts: pre-independence and post-independence with special reference to the study of *Saudagiri*. The secondary research would support the study of craft evolution during the pre-independence era, especially the period of *Saudagiri* trade i.e., 1840 – 1949. Primary as well as secondary research was employed to study the craft evolution post-independence especially the 75 years after independence (i.e. up to 2022), now celebrated nationally as *Azadi ka Amrut Mahotsav*.

3.2.1 Secondary research

Literature survey was conducted to collect secondary information regarding the origin, history, past events, *Saudagiri* trade to support the first-hand information as well as to relate and compare it with the existing situation. The printed data was collected through various published and unpublished records which included books, gazetteers, government policies, archival records, research papers, articles (from journals, magazines, local magazines and special issues), unpublished master's dissertation and unpublished craft documentation referred from various physical libraries and digital sources as listed below.

- Smt. Hansa Mehta Library, The Maharaja Sayajirao University of Baroda, Vadodara
- Oriental Library, The Maharaja Sayajirao University of Baroda, Vadodara
- Library of Tribal section, Gujarat Vidyapeeth, Ahmedabad
- Knowledge Management Center, National Institute of Design, Ahmedabad
- Resource Centre, National Institute of Fashion Technology, Gandhinagar
- National Digital Library of India (NDLI) <https://ndl.iitkgp.ac.in/>
- Directory of Open Access Journals (DOAJ) - <https://doaj.org/>
- JSTOR- <https://www.jstor.org/>
- Google Scholar- <https://scholar.google.com>

- Academia - <https://www.academia.edu/>

3.2.2 Primary Research

Primary research was carried out to obtain first-hand information related to the craft. The steps followed to study the evolution of the craft with special reference to *Saudagiri* trade, are detailed below under the following heads.

3.2.2.1 Sample selection

3.2.2.2 Selection of Tool

3.2.2.3 Data Collection

3.2.2.4 Data analysis and presentation

3.2.2.1 Sample selection:

The sample selection for data collection was classified in three categories to capture information from relevant stakeholders to study the first three objectives i.e. Phase I of the research design. These included the following stakeholders who were the primary witness or were associated with the primary witness who had observed the occurrences in the craft themselves or perceived it from their family members or other craft acquaintances.

- i. Wood block makers
- ii. Key buyers of Pethapur wood blocks
- iii. Privileged observers

i) Wood block makers:

It was found from the census report (2011), that the total population of Pethapur town was 23,947 people. The working population was 7,556, with 6,667 being male workers. The total number of household industries was 161, with males holding 141 of them. During the pilot study it was found that there were only 22 craftsmen engaged presently in the craft of wood block making. The inclusion and exclusion criteria for the selection of wood block makers are listed below.

Inclusion criteria for sample selection:

- The craftsman must be a resident of Pethapur village for at least ten years.
- The craftsmen who were engaged with the wood block making process for at least ten years.

However, the sample size of such craftsmen residing in Pethapur village was small and a case study method was thus employed for data collection.

Exclusion criteria for sample selection:

- Craftsmen unable to participate due to chronic health issues or unavailability during the period of study were excluded.

ii) Buyers of Pethapur wood blocks

The printers who ordered blocks from Pethapur were selected following the stratified random sampling. They were interviewed to understand the changes in craft from their perspective. The buyers were identified from the list available with the Pethapur craftsmen. Each of the eight existing workshops had buyers majorly from within the state of Gujarat except for one from outside Gujarat. The list collected from each workshop was thus first organized into three categories of buyers (Old, Frequent, New) based on their length of association with the workshop (long period and short period) and frequency of buying from that workshop to fetch data relevant for the fulfillment of the stated objective.

Old buyers meant those buyers who were associated in the purchase transaction with the craftsman for more than 10 years. Frequent buyers meant those buyers who would place orders regularly irrespective of their association with the craftsman being long or short. New buyers were those who shared purchase transactions with the craftsmen for a very short period i.e. period of the recent past five years or less.

Three key buyers from each workshop of Pethapur were randomly selected, making it a total of 24 buyers from eight workshops. The local buyers were interviewed personally and those who were distant were contacted, and a telephonic interview was planned with prior appointment.

Inclusion criteria for sample selection:

- The buyers who purchased blocks directly from the craftsmen for printing at their workshop were considered.
- These buyers who fit into three respective categories as listed above were selected from each workshop.

Exclusion criteria for sample selection:

- Those buyers who were not available and chose not to participate were eliminated from the selection process.

iii) Privileged observers:

The privileged observers were identified from literature review as well as snowball technique. Their privileged status was due to the given factors such as authority, expertise and specialized knowledge in the lost art of *Saudagiri* printing, its trade and wood block making, enabling them to be chosen as respondents who would share insights into the changes taken place in woodblock making craft due to historical and cultural factors.

Inclusion criteria for selection of privileged observers:

- A member from the *Saudagiri* printers' family who is aware of the stories of *Saudagiri* printing during the period of its trade (1840-1940); passed on as oral traditions to the generations from the traditional printer who had witnessed these operations.
- Textile printer families who had connections with Pethapur block makers of Gujarat for at least one business transaction during the listed period of study.
- Researcher who had documented the legacy of *Saudagiri* printing and had connection with the traders of *Saudagiri* trade.

Exclusion criteria for selection of privileged observers:

- Those purposively selected individuals or groups who fail to share relevant information useful for the study.
- Those purposively selected individuals or groups who did not give consent to participate in the study were not included.

3.2.2.2 Development of tool:

To collect detailed information regarding the evolution of craft, a semi-structured interview schedule was prepared based on objectives of the study. Interview schedules were prepared for the wood block makers and key buyers (Appendix 1, 2) with almost similar questions relevant to their respective area of expertise connected to the craft. The privileged observers were inquired by conversation by providing brief

information about study. Questions were put up in-between generated during conversation.

The schedule for the craftsmen was prepared to gather information on the demographics of craftsmen, socio-economic profile, craft details, craft skills, existing status, and changes occurred, problems faced, benefits from government, awareness of craftsmen with regards to various schemes and policies available to them by the government.

A separate schedule for the key buyers was prepared as they were one of the important stakeholders of the craft as an end-user. A telephonic interview was executed to acquire details in terms of changes taking place in the wooden block – its cost, size, design, quality, packaging, dispatch, time taken to complete an order. It was prepared in English and it was explained in local dialects to those who were not comfortable with English.

The interview was supported with photography as well as audio-video recording to trace maximum information without missing any. All the respondents were informed and briefed about the research prior to conducting an interview. An informed consent was taken from all the respondents.

Privileged observers who were available at Ahmedabad and Pethapur were contacted, and face to face conversation were made to acquire additional and rare information on *Saudagiri* trade and pictures were taken to document the rare wood blocks of *Saudagiri* design, design books and fabric samples.

3.2.2.3 Data collection

The research was ethnographic in nature. Hence, information related to the evolution of the craft was collected using various methods such as case study, interview, participant observation method, focus group discussion and archival research. To achieve the required results data was collected by complete immersion of the investigator in the culture and everyday life of the craftsmen who were the main subjects of this study, through extensive field work. Field visits were made for the pilot study during December 2017 to March 2018. Major data collection was done in the year of 2018 and 2019. The remaining data collection was taken up in September 2020 during the pandemic following the imposed restrictions. The schedule was prepared in English language and the questions then decoded to the respondents in

Gujarati or Hindi as required. Voice recorder, digital camera and note pads were commonly used tools to fetch data for this ethnographic research. A voice recorder inbuilt in the Redmi note 7 phone was used to capture voice notes of the respondents for repetitive listening and interpretation of the information shared; to ensure no details were missed. Field notes of the responses and observations were set down in writing for later reference. Several important aspects that demonstrated the changes in craft and lives of craftsmen were captured through still and motion photography using a digital camera inbuilt in Redmi note 7. Methods employed for data collection are discussed below.

i. Case study method

A case study method is a popular form of qualitative analysis and involves careful and complete observation of a person, a family, an institution, a cultural group or the entire community. It is an in-depth study and deals with the process that took place and their interrelations. An in-depth study was done to collect minute details and clear insights related to the origin of craft, documentation of tools, techniques followed, changes taken place, problems faced, craft skills, community practicing the craft and to determine the interrelationship amongst them by complete engagement of the investigator in the notions and everyday life of the craftsmen.

ii. Interview method

An open-ended interview schedule was prepared to elicit first-hand and detailed information from the craftsmen. The schedule included demographic details and socio-economic profile of the craftsmen (Appendix 1). The information regarding craft skills, craft experience, problems faced, technology advancement and awareness of beneficiary schemes was also acquired from the interview.

The key buyers of each workshop of Pethapur were also interviewed (Appendix 2) as they were the actual end users of blocks. It helped in gaining insight into the quality and characteristics of the wood blocks of Pethapur, trade details, changes taken place throughout the decades, mapping the strength, weakness, and its causes. Their perspective on the above details as an end user of wood blocks was aided with better understanding and clarity in studying the evolution.

iii. Participant observation method

To examine, collect, and document the organization of people and events, continuities over time and patterns, as well as the immediate socio-cultural circumstances in which human existence unfolds, the participant observation approach was chosen. By being a part of the respondent's daily life and monitoring their lifestyle, and work pattern the researcher was able to record the respondent's natural behaviour as well as gather information which could not be easily obtained during the interview.

iv. Archival research

Several museums and other relevant organizations were researched for its archival records residing in digital and physical format. The samples of wooden blocks and printed textiles available at Calico Museum, Ahmedabad, Shreyas folk museum, Ahmedabad and Baroda Museum and Picture Gallery, Vadodara were studied physically whereas the digital content available for similar records in the world wide web were explored too.

3.2.2.4 Data analysis and presentation

The data collected was in the form of field notes, audio-visual recordings, photographs, and archives. It was analyzed according to the stages of research design and organized in a manner that answered the research questions. The data collected to study the evolution of the craft was analyzed in the form of description, comparison, establishing relationships amongst the events that occurred and supported with the photographs, drawings, tables, and charts for better presentation of data and clarity.

2.2 Promotion of the craftsmen and craft

Phase II was planned to warrant preservation and sustainability of the craft and craftsmen. In an earnest endeavor to increase the trained manpower for the preservation of the Pethapur wood block making craft, various efforts were made, but they were met with significant limitations. Initially, attempts were made to collaborate with the authorities for providing training to inmates of Ahmedabad and Vadodara Jail (Annexure I). Unfortunately, the efforts faced a major setback as there was no available funding due to financial constraints exacerbated by the COVID-19 conditions, which either led to the depletion or diversion of funds. Moreover, the tools essential for wood block making were deemed too sharp and

were consequently prohibited in the hands of jail inmates, given their preconditioning.

Subsequently, efforts were made to engage the authorities of the Industrial Training Institute (ITI) in Baroda, and their main office, ITI Udyog Bhavan office to introduce a new course on Wood Block Making (Annexure II). However, encountered limitations were formidable. While the ITI could provide space for the proposed course, the craftsmen serving as instructors would not receive any remuneration. This posed a significant challenge, as the craftsmen were reluctant to dedicate their time to training individuals without the assurance of financial compensation. The craftsmen hesitated to leave their regular work, uncertain of any returns, and were skeptical about training individuals who might not pursue wood block making as a viable occupation. These obstacles underscore the complexities involved in fostering skill development within the constraints of available resources and institutional frameworks.

Recognizing the challenges faced in increasing trained manpower for the preservation of the Pethapur wood block making craft, the researcher strategically explored alternative avenues to build the capacity of existing craftsmen. The focus shifted towards implementing ergonomic analysis and other methods such as increasing craft visibility, create digital identity of the craft, enhance work efficiency and capacity building of the craftsmen; to enhance the skill set of the craftsmen. This shift in strategy aimed at empowering the existing craftsmen, to elevate themselves and their craft, ultimately contributing to the sustainability and evolution of the Pethapur wood block making craft within the confines of the prevailing constraints.

3.3.1 Planning of Promotion Strategy

Promotion strategy of the craftsmen and craft was planned to fulfill the aim of making the wood block craft more noticeable to larger audiences as well as efforts were made to improve the capacities of the craftsmen to enhance their functioning; based on the perceived challenges and problems encountered by the craftsmen. Appropriate actions were categorized and further steps taken to achieve the stated objective of promoting the craftsmen and the craft.

The systematic procedure followed for the promotion of the craftsmen and craft has been described separately in detail.

3.3.2 Promotion of the craftsmen

The promotion of craftsmen refers to efforts made to improve the work efficiency of craftsmen. In the present study three different areas were selected to attend to major issues identified from the study and covered under capacity building.

3.3.2.1 Capacity building

Three areas were purposively selected for capacity building taking cognizance of their specific needs to advance the capacities of the craftsmen. The categorical areas selected were ergonomics, technology, and awareness. The specific objective thus formulated to fulfill the stated purpose was.

- A. To analyze ergonomic risks related to the craft practice
- B. To explore the use of technology in craft
- C. To orient the craftsmen for benefits of various government schemes.

The steps followed for each selected area to make possible efforts for the promotion of the craftsmen have been discussed below in detail.

A) Ergonomic analysis

Ergonomic analysis was planned to increase the productivity of the craftsmen by improving their health and work environment. The craftsmen prone to ergonomic risk factors were studied and analyzed by implying ergonomic principles. It was taken up to analyze the work pattern of the craftsmen and their workplace with an ergonomic approach. The steps followed to achieve this are described below.

i) Sample selection

All the fifteen block makers of Pethapur from eight workshops i.e., the whole population ($N=n$) were selected as samples for ergonomic study.

ii) Development of Tool for data collection

The Modified Musculoskeletal Questionnaire (Bisht D.) was used, (Appendix 3) to collect the required information from the respondents. It was divided into three sections.

- a) Demographic and work-related information i.e. age, experience, education, marital status, health habits, working hours, job tasks, workspace-related information, etc.
- b) Body part experience discomfort interview i.e. pain or discomfort at different body sites, such as the palm, wrist, and finger regions, knee, and leg (using the body part discomfort scale, developed by Corlett, E.N., and Bishop, 1976). It is a 10-point scale and used for measuring the pain experienced by the respondent to determine the degree of severity of the pain. (Figure 3.3)

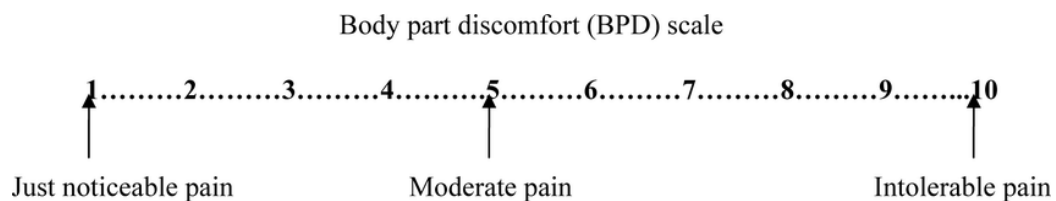


Figure 3.3: 10-point Body part discomfort (BPD) scale (Corlett, E. N. and Bishop, R.P., 1976)

Source: <https://www.researchgate.net/figure/Body-part-discomfort-BPD-scale>

- c) Postural analysis was done using the Rapid Upper Limb Assessment [RULA] method from the existing craftsmen in Pethapur. RULA sheet is a tool to analyze the upper limb body posture, and it helps to assess biomechanical and postural load needs of job duties and demands on the neck, trunk, and upper extremities are considered by the RULA ergonomic assessment instrument. A one-page worksheet is used to assess the necessary repetition, force, and body position. Scores are entered for each body region in sections. For the arm and wrist and B for the neck and trunk based on the evaluations. Tables on the form are then utilized to assemble the risk factor variables, resulting in a single score that shows the amount of Musculo - skeletal disorders (MSD) risk, after the data for each location has been gathered and graded.

RULA is a helpful tool in screening the ergonomic risks at the workplace as the final score also interprets whether an implantation of change is required or not. The RULA postural analysis method is considered a pen-paper observation method. (Figure 3.4)

The postures maintained for the long duration were considered for analysis. Postures of upper arm, lower arm, forearm, and wrist were scored as Posture A. Force load scores were calculated. Neck, back and legs postures were observed and scored as Posture B. All the scores were then added to get the final score which determined the ergonomic risk associated with that posture.

ERGONOMICS PLUS **RULA Employee Assessment Worksheet** Task Name: _____ Date: _____

A. Arm and Wrist Analysis

Step 1: Locate Upper Arm Position:

Step 1a: Adjust...
If shoulder is raised: +1
If upper arm is abducted: +1
If arm is supported or person is leaning: -1

Step 2: Locate Lower Arm Position:

Step 2a: Adjust...
If either arm is working across midline or out to side of body: Add +1

Step 3: Locate Wrist Position:

Step 3a: Adjust...
If wrist is bent from midline: Add +1

Step 4: Wrist Twist:
If wrist is twisted in mid-range: +1
If wrist is at or near end of range: +2

Step 5: Look-up Posture Score in Table A:
Using values from steps 1-4 above, locate score in Table A

Step 6: Add Muscle Use Score
If posture mainly static (i.e. held >10 minutes), Or if action repeated occurs 4X per minute: +1

Step 7: Add Force/Load Score
If load < 4.4 lbs. (intermittent): +0
If load 4.4 to 22 lbs. (intermittent): +1
If load 4.4 to 22 lbs. (static or repeated): +2
If more than 22 lbs. or repeated or shocks: +3

Step 8: Find Row in Table C
Add values from steps 5-7 to obtain Wrist and Arm Score. Find row in Table C.

B. Neck, Trunk and Leg Analysis

Step 9: Locate Neck Position:

Step 9a: Adjust...
If neck is twisted: +1
If neck is side bending: +1

Step 10: Locate Trunk Position:

Step 10a: Adjust...
If trunk is twisted: +1
If trunk is side bending: +1

Step 11: Legs:
If legs and feet are supported: +1
If not: +2

Step 12: Look-up Posture Score in Table B:
Using values from steps 9-11 above, locate score in Table B

Step 13: Add Muscle Use Score
If posture mainly static (i.e. held >10 minutes), Or if action repeated occurs 4X per minute: +1

Step 14: Add Force/Load Score
If load < 4.4 lbs. (intermittent): +0
If load 4.4 to 22 lbs. (intermittent): +1
If load 4.4 to 22 lbs. (static or repeated): +2
If more than 22 lbs. or repeated or shocks: +3

Step 15: Find Column in Table C
Add values from steps 12-14 to obtain Neck, Trunk and Leg Score. Find Column in Table C.

Scores

Table A: Wrist Score

Upper Arm	Lower Arm	Wrist Twist	Wrist Twist	Wrist Twist	Wrist Twist
1	1	1	2	2	3
1	2	2	2	2	3
1	3	2	3	3	3
1	4	2	4	4	4
2	1	2	3	3	3
2	2	2	3	3	3
2	3	2	3	3	3
2	4	2	4	4	4
3	1	2	3	3	3
3	2	2	3	3	3
3	3	2	3	3	3
3	4	2	4	4	4
4	1	2	3	3	3
4	2	2	3	3	3
4	3	2	3	3	3
4	4	2	4	4	4
5	1	2	3	3	3
5	2	2	3	3	3
5	3	2	3	3	3
5	4	2	4	4	4
6	1	2	3	3	3
6	2	2	3	3	3
6	3	2	3	3	3
6	4	2	4	4	4

Table B: Neck, Trunk, Leg Score

Neck	Trunk	Legs	Legs	Legs	Legs	Legs
1	1	1	2	3	4	5
1	2	1	2	3	4	5
1	3	1	2	3	4	5
1	4	1	2	3	4	5
1	5	1	2	3	4	5
1	6	1	2	3	4	5
1	7	1	2	3	4	5
1	8	1	2	3	4	5
1	9	1	2	3	4	5
1	10	1	2	3	4	5
1	11	1	2	3	4	5
1	12	1	2	3	4	5
1	13	1	2	3	4	5
1	14	1	2	3	4	5
1	15	1	2	3	4	5
1	16	1	2	3	4	5
1	17	1	2	3	4	5
1	18	1	2	3	4	5
1	19	1	2	3	4	5
1	20	1	2	3	4	5
1	21	1	2	3	4	5
1	22	1	2	3	4	5
1	23	1	2	3	4	5
1	24	1	2	3	4	5
1	25	1	2	3	4	5
1	26	1	2	3	4	5
1	27	1	2	3	4	5
1	28	1	2	3	4	5
1	29	1	2	3	4	5
1	30	1	2	3	4	5
1	31	1	2	3	4	5
1	32	1	2	3	4	5
1	33	1	2	3	4	5
1	34	1	2	3	4	5
1	35	1	2	3	4	5
1	36	1	2	3	4	5
1	37	1	2	3	4	5
1	38	1	2	3	4	5
1	39	1	2	3	4	5
1	40	1	2	3	4	5
1	41	1	2	3	4	5
1	42	1	2	3	4	5
1	43	1	2	3	4	5
1	44	1	2	3	4	5
1	45	1	2	3	4	5
1	46	1	2	3	4	5
1	47	1	2	3	4	5
1	48	1	2	3	4	5
1	49	1	2	3	4	5
1	50	1	2	3	4	5
1	51	1	2	3	4	5
1	52	1	2	3	4	5
1	53	1	2	3	4	5
1	54	1	2	3	4	5
1	55	1	2	3	4	5
1	56	1	2	3	4	5
1	57	1	2	3	4	5
1	58	1	2	3	4	5
1	59	1	2	3	4	5
1	60	1	2	3	4	5
1	61	1	2	3	4	5
1	62	1	2	3	4	5
1	63	1	2	3	4	5
1	64	1	2	3	4	5
1	65	1	2	3	4	5
1	66	1	2	3	4	5
1	67	1	2	3	4	5
1	68	1	2	3	4	5
1	69	1	2	3	4	5
1	70	1	2	3	4	5
1	71	1	2	3	4	5
1	72	1	2	3	4	5
1	73	1	2	3	4	5
1	74	1	2	3	4	5
1	75	1	2	3	4	5
1	76	1	2	3	4	5
1	77	1	2	3	4	5
1	78	1	2	3	4	5
1	79	1	2	3	4	5
1	80	1	2	3	4	5
1	81	1	2	3	4	5
1	82	1	2	3	4	5
1	83	1	2	3	4	5
1	84	1	2	3	4	5
1	85	1	2	3	4	5
1	86	1	2	3	4	5
1	87	1	2	3	4	5
1	88	1	2	3	4	5
1	89	1	2	3	4	5
1	90	1	2	3	4	5
1	91	1	2	3	4	5
1	92	1	2	3	4	5
1	93	1	2	3	4	5
1	94	1	2	3	4	5
1	95	1	2	3	4	5
1	96	1	2	3	4	5
1	97	1	2	3	4	5
1	98	1	2	3	4	5
1	99	1	2	3	4	5
1	100	1	2	3	4	5

Table C: Neck, Trunk, Leg Score

Neck	Trunk	Legs	Legs	Legs	Legs	Legs
1	1	1	2	3	4	5
1	2	1	2	3	4	5
1	3	1	2	3	4	5
1	4	1	2	3	4	5
1	5	1	2	3	4	5
1	6	1	2	3	4	5
1	7	1	2	3	4	5
1	8	1	2	3	4	5
1	9	1	2	3	4	5
1	10	1	2	3	4	5
1	11	1	2	3	4	5
1	12	1	2	3	4	5
1	13	1	2	3	4	5
1	14	1	2	3	4	5
1	15	1	2	3	4	5
1	16	1	2	3	4	5
1	17	1	2	3	4	5
1	18	1	2	3	4	5
1	19	1	2	3	4	5
1	20	1	2	3	4	5
1	21	1	2	3	4	5
1	22	1	2	3	4	5
1	23	1	2	3	4	5
1	24	1	2	3	4	5
1	25	1	2	3	4	5
1	26	1	2	3	4	5
1	27	1	2	3	4	5
1	28	1	2	3	4	5
1	29	1	2	3	4	5
1	30	1	2	3	4	5
1	31	1	2	3	4	5
1	32	1	2	3	4	5
1	33	1	2	3	4	5
1	34	1	2	3	4	5
1	35	1	2	3	4	5
1	36	1	2	3	4	5
1	37	1	2	3	4	5
1	38	1	2	3	4	5
1	39	1	2	3	4	5
1	40	1	2	3	4	5
1	41	1	2	3	4	5
1	42	1	2	3	4	5
1	43	1	2	3	4	5
1	44	1	2	3	4	5
1	45	1	2	3	4	5
1	46	1	2	3	4	5
1	47	1	2	3	4	5
1	48	1	2	3	4	5
1	49	1	2	3	4	5
1	50	1	2	3	4	5
1	51	1	2	3	4	5
1	52	1	2	3	4	5
1	53	1	2	3	4	5
1	54	1	2	3	4	5
1	55	1	2	3	4	5
1	56	1	2	3	4	5
1	57	1	2	3	4	5
1	58	1	2	3	4	5
1	59	1	2	3	4	5
1	60	1	2	3	4	5
1	61	1	2	3	4	5
1	62	1	2	3	4	5
1	63	1	2	3	4	5
1	64	1	2	3	4	5
1	65	1	2	3	4	5
1	66	1	2	3	4	5
1	67	1	2	3	4	5
1	68	1	2	3	4	5
1	69	1	2	3	4	5
1	70	1	2	3	4	5
1						

information with low literacy rates with ease, and the response rate and quality of the data could be boosted too, by personalizing the conversations.

Physical parameters such as height and weight were measured by using a metal measuring tape and digital weighing scale (Perfexca). The Body Mass Index (BMI) was computed from the data collected using a standard equation.

v) Data analysis and presentation

The participants were interviewed and observed to analyze ergonomic risks associated with the age, workload, pattern of working and work area. The data collected from all the participants was then compared to find effect of age, workload, and posture on body part experiencing discomfort. As the sample size was N=15, which was less than 30, the average mean, the association between the two variables were analyzed using tables and graphs explained with photographs wherever required along with description.

B) Exploration with technology

The second area selected to overcome the shortage of manpower was exploring the possibility of reduction in time and labour with equally precise outcomes of block making. From the literature survey it was found that CNC machines can be used to minimize labour and enhance productivity by saving time and energy in woodwork. Therefore, an exposure visit to the CNC workshop was planned to understand the process and further explore the possibilities of technology intervention in block making. The CNC unit located at Vatva GIDC; Ahmedabad was selected for the convenience of its proximity to the home location of the craftsmen. The making of a wood block on a CNC machine was then explored and its results analyzed and compared with the hand carved block.

The block makers who agreed to explore and could take out time from their work were taken to the workshop and a small wooden block was tried out.

i. Development of woodblock using technology (CNC machine)

During the visit a small wooden block of 3" x 3" size was prepared and analyzed. The simple geometric design was selected and sent to the operator for job making prior to the visit. Job making software, functioning of machine, time consuming, results were observed and discussed amongst the block makers and the workshop owner.

ii. Comparative analysis of developed wooden block

The developed block was analyzed in terms of fineness, time consuming, costing and maintenance. It was also compared with the hand carved block. Analysis and comparison were done by discussing with the craftsmen and the operator by recording notes and audio-visual tools and presented in the form of description supported with table and photograph. The best possibilities with CNC machines and their limitations were listed.

C) Awareness Workshops

It was analyzed from the pilot study that there was a need to inform craftsmen about the various schemes developed by the Government for the benefit of the craft and the craftsmen. The steps followed to fulfill the aim are described below.

i. i. Making a list of existing Government schemes

There were numerous schemes developed by the government including each craft and craftsmen for each region. The researcher had acquired the knowledge of such schemes from the official websites, literature survey and by calling the government offices namely Udyog Bhavan, Sachivalay, Office of District Commissioner at Gandhinagar, Gujarat as well as Office of Development Commissioner Handicraft (DCH), Ahmedabad. Visits were also made to get information on how to avail themselves of schemes. After that the appropriate schemes for wood block making craft were identified and listed out.

ii. Categorize the schemes and select the appropriate schemes

An extensive list of various schemes was prepared and amongst them schemes suitable for wood block making craft were categorized and selected for imparting its knowledge.

iii. Imparting knowledge of such schemes to avail benefits by organizing awareness workshop

An awareness camp was organized by collaborating with Entrepreneurship Development Institute (EDI), Ahmedabad under *Hastkala Setu Yojna* for the craftsmen to disseminate the knowledge of such schemes at the Pethapur village itself. The workshop was organized in two stages at the interval of two months.

Stage 1: An introductory workshop cum meeting with the craftsmen who could join was arranged at Satishbhai Prajapati's workshop by the district level officer Mr. Jignesh Kumar and researcher on October 8, 2022.

Stage 2: Both district and state level teams with the officers invited as resource persons in order to get comprehensive knowledge and make the craftsmen familiar with such schemes. The purpose of the workshop was to make the craftsmen familiar with such schemes, the process of availing the scheme in terms of documents required, benefits of the schemes and its policy. A three-hour workshop was organized at Ramji Mandir, Pethapur on December 14, 2022.

With the support of EDI and the researcher's efforts, craftsmen from each workshop were made to participate in one-day workshop on "Capacity building workshop for GI artisans of Gujarat" organized by Gujarat National Law University (GNLU), Koba, Gandhinagar on March 28, 2023.

iv. Participant feedback

Feedback from the craftsmen was collected after the workshop held at Pethapur in the form of a questionnaire in Gujarati (Appendix) and it was analyzed using appropriate method.

3.3.3 Promotion of the Craft

Promotion of the craft was planned to spread awareness and make the craft visible digitally as well as by spreading knowledge physically to make the craft noticeable to target audiences using various promotional techniques. The techniques purposively selected for the promotion were divided into two categories; increase visibility and create digital identity.

3.3.3.1 Increase visibility

To make wood block making craft more noticeable to the target audience, demonstration of knowledge as well as Do-it-yourself hand block printing kit was developed. The procedure followed for both is described below.

A) Do-it-yourself hand block printing kit

i. Market Survey

Market survey was done to study the various DIY kits available in the Indian market and understand its target audience. Kits developed by various brands and sold on online stores were studied.

ii. Planning of kit

The purpose of developing a DIY kit was to promote the craft by using the small wood blocks made by the craftsmen from surplus and faulty wood pieces. Most of the craftsmen used to make such blocks to sell and offer to the visitors who came to their workshop, as well as to sell at various exhibitions, workshops, and demonstrations they invited. During the study, the small blocks were not available to all the craftsmen except three workshops. Hence, the five wood blocks from each workshop were developed.

Planning of kit was done for selection of contents to be included in a kit based on the target audience. Other items to be considered for planning were a wooden block, ink for printing, a piece of sponge, brush, an imprint of block for reference, an article for practice printing and a booklet. The steps followed were:

- a) Target group: It was developed for kids above five years and all adults interested to begin with and learn traditional printing technique
- b) Preparation and selection of designs for making wood blocks (figure 3.4)

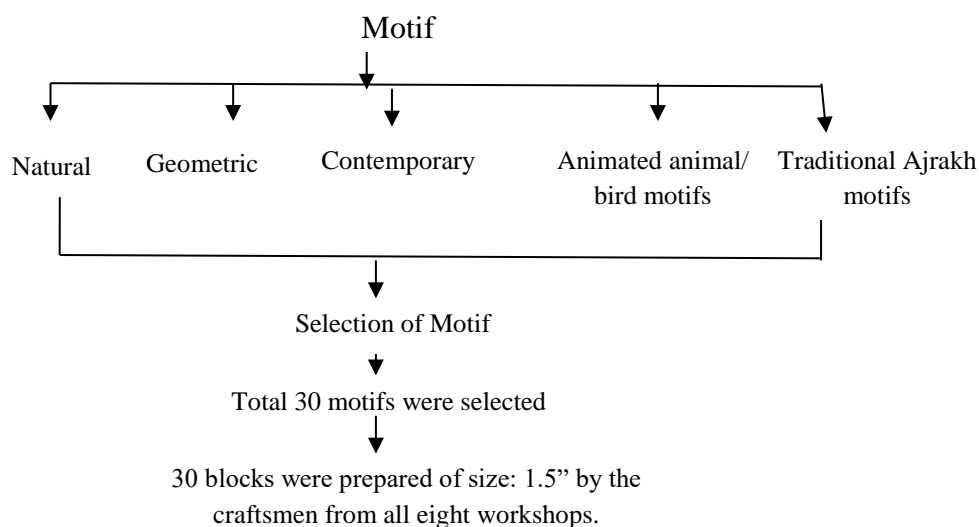


Figure 3.4: Procedure followed for preparation of motif and block for DIY kit.

iii. Development of Booklet

An informative and instructional guide in the form of a booklet was developed to spread the knowledge of craft and craftsmen. The following points were considered for developing a booklet.

- Size of a booklet and number of pages
- Content writing, selection of pictures
- Selection of theme and placement of content and pictures
- Editing and final printing

iv. Assembling of supplementary elements in the kit

After planning the kit, preparation of wood blocks and booklet development other accompanying elements were selected and assembling of kit was done. The steps followed for assembling the kit are listed below.

- Printing ink: Fevicyl fabric colour was selected for printing as it is easy to use, its availability, quality and people are aware of these colours.
- Paint brush: A smaller size of flat paint brush with wooden handle was selected to pick up colour for pouring on the sponge.
- A piece of sponge: A piece of sponge is required to be added in the kit for the purpose of padding, to dip the block. It served the purpose of printing colour tray.
- An imprint of block on paper: An imprint of block on paper was added into the kit for easy reference.
- Product for printing: Products selected for printing were multipurpose pouches, tote bag, sling bag and table mats. The selection of products was made by keeping in mind the target group and its multiple uses. Muslin fabric was selected to construct various products because of its absorbent property, availability, and user friendly.
- Packaging: A 3 ply brown corrugated packing box with flap having size: length 10", width 7 inch and height: 3.5 inch was selected to assemble the kit. One product with one block was kept in each kit.

The developed kits were given to each craftsman and displayed at various places.

B) Craft Demonstrations

Craft demonstrations were undertaken to spread knowledge of craft by interacting with and connecting with people from various backgrounds, such as school children, academicians, researchers, and designers. The methods followed for the demonstration are listed below. By combining these methods, a comprehensive strategy was created for identifying, engaging, and educating several audiences through craft demonstrations.

3.3.3.2 Create Digital Identity

Digital identity is the best way to promote wood block making craft to a global audience through a website, social media platforms, and online marketplaces. The methods selected for creating digital identity were the development of calling cards and website. Identity on social media was created to reach out to a larger audience.

A) Calling cards and website development

Development of calling cards

Calling cards for each workshop in Pethapur were re-designed to make it more professional and tech-savvy as well as for easy access to information about the craft. The steps followed are described below.

a. Layout planning and visual design of calling cards:

A calling card template was designed with common contents such as contact details, address line and business name and a QR Code. The block carved at the specific workshop was chosen as the backdrop image in each card. Calling cards were designed by using the *Canva* application.

b. Content Development:

Details of craftsmen involved in each workshop were collected with visual representation for content development.

c. Dissemination of developed cards:

Re-designed calling cards were presented to all the respective workshop owners for distribution as well as also added to the developed DIY hand block printing kit.

Development of website

An informative website was developed to promote the craft globally. A common website for wood block making craft of Pethapur was created which included details of all the existing workshops and details of each craftsman for global reach.

The steps followed for developing website are described below

a. Layout planning and visual design of website:

The structure of the website was planned through the creation of a sitemap that included the important pages and their hierarchies. The position of the content and photos was plotted out using pen and paper to organize the content in a systematic manner.

b. Content Development:

Content was developed including craft practice, craftsmen's portfolio was created, keeping in mind the theme, colour schemes and visual elements.

c. Publish website:

Developed Website was launched in July 2023. It was promoted through social media. The website traffic was monitored.

B) Social media Campaigns

Various social media were selected to promote the craft as an effective way to reach out to a wider audience. It was done by following steps.

a. Selection of appropriate social media:

Facebook, Instagram and YouTube were selected to upload posts on woodblock making craft as they were most widely used social media.

b. Content development:

Content was developed to be posted on social media platforms by creating short videos and photos with description.

c. Upload the developed content:

The developed content was uploaded on regular intervals in form of posts and stories. Key data, including engagement rate, reach, follower growth, and website traffic from social media, were tracked for uploaded content and examined to gain insight into the success of social media promotion by using the analytics tools offered by each social media site.

An informative website was developed to promote the craft globally. A common website for wood block making craft was created including all the existing workshops and details of each craftsman.