International Journal of Environmental Sciences
ISSN: 2229-7359
Vol. 11 No. 24s, 2025
https://theaspd.com/index.php

Computer Embroidery As A Tool For Village Women's Empowerment: A Case Study Of Palvoncha

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Abstract

This study explores the experiences of women undergoing training in computer embroidery at the Nava Women Empowerment Centre Participants from surrounding villages such asPalvoncha, Jagannadhapuram, Kothagudem, Pandurangapuram, Tekulapalli, and Gangaram engage in both manual and computer-aided embroidery, creating innovative and aesthetically appealing designs that have drawn wide appreciation. The program has proven to be a valuable skill-development initiative, offering women new opportunities for self-reliance and creative expression. This paper examines how these women navigate and overcome social and environmental challenges through computer embroidery, while also documenting their design products and the broader impact on community empowerment.

Key words: *Women Empowerment, Rural Development, Skill Training, Design Innovation, Social Transformation, Digital Craft, Village Artisans, Livelihood Opportunities, Computer Embroidery, Community Development. CAD :Computer aided design. CSR*

INTRODUCTION

In the rural areas of Telangana case study of computer embroidery particularly in Palvoncha mandal, skill development initiatives have become a vital source of livelihood and empowerment for women. Palvoncha has emerged as a training hub, where around 200 women from nearby villages such as Kothagudem, Jagannadhapuram, Pandurangapuram, Tekulapalli, and Gangaram have been trained through various development programs. These women actively engage in multiple income-generating activities, including computer embroidery, palm leaf craft, gift-making with Kora grass, four-leaf boxes, bangles, jute bag production, and tailoring. Such training programs not only provide them with valuable skills but also enable them to overcome socio-economic barriers, contribute to household income, and participate meaningfully in community development. The case of Palvoncha demonstrates how rural women, when equipped with modern and traditional craft skills, can transform both their personal lives and their local economies.

Image -1: Women Empowerment through computer embroidery design.[15]

Case Study: Village Artisan Women Empowerment through CAD Embroidery

Background:
Traditional women artisans in rural villages often depend on hand embroidery for income. While skill levels are high, limited access to technology and markets restricts earnings.

Intervention:
A small CAD–Embroidery setup was introduced, including:
- Computer with CAD embroidery software
- Single-head embroidery machine
- Training in digital design and machine operation

Impact:
- Women learned to convert traditional motifs into digital embroidery designs.
- Productivity and precision increased compared to hand embroidery.
- New market opportunities opened through fashion boutiques and online sales.
- Empowered women with sustainable livelihoods, reduced migration, and promoted cultural craft preservation.

Outcome:
The case demonstrates how CAD embroidery technology + skill training can transform village women artisans into self-reliant entrepreneurs, while preserving traditional motifs in modern fashion.

Objectiveof the study:
- To study how computer embroidery training empowers rural women by enhancing their skills, livelihood opportunities, and ability.
- To overcome social challenges, while documenting their creative design outcomes.

RESEARCH METHODOLOGY

The study is based on field visits to Palvoncha and Kothagudem mandals in Telangana, involving interviews with women artisans, observation of production processes, and documentation of design works. Secondary data from academic and fashion design sources were also used to support the analysis.

Raw materials & Tools
Computer embroidery requires a combination of fabrics, threads, and digital tools.

Sl.	Tools	Uses and Details
1	Cotton Threads	Commonly used for lightweight fabrics and traditional patterns.
2	Silk Threads	Ideal for premium designs, glossy finish, and intricate detailing.
3	Polyester Threads	Durable, colorfast, and widely used for machine embroidery.
4	Blended Fabrics & Threads	Combinations like cotton-poly blends for strength and cost-effectiveness.
5	Silk Embroidery Threads	Specialty threads for decorative motifs and high-end designs.
6	Beads	Used for ornamental enhancement and 3D surface effects.
7	Sequins	Applied for festive, fashion, and decorative appeal.

Table – 1: computer embroidery : Various Raw Materials uses.[20]

Image 2: Threads in various colors – rayon, polyester, silk, and more.[16]

Required material setup:

Computer with CAD embroidery software, Embroidery machine (single-head), Threads(rayon, polyester, silk, etc.),Hoops & frames, Stabilizers,Needles(asper fabric/thread type), Cutting tools & accessories(scissors, bobbins, etc.)

Table - 2 : Machine & brands equipments.[21]

Required Machine setup:

For a small CAD embroidery setup, commonly used machine namesare: • Single-head Embroidery Machine – for sampling and small production. • Multi-head Embroidery Machine – for bulk production. **Popular Brands/Models:**
• **Brother** (PR Series, Innov-is) • **Janome** (Memory Craft Series) • **Bernina** (Bernette Series) • **Barudan** (BEKT Series) • **Tajima** (TMAR Series) • **SWF** (MAS-12, E Serie

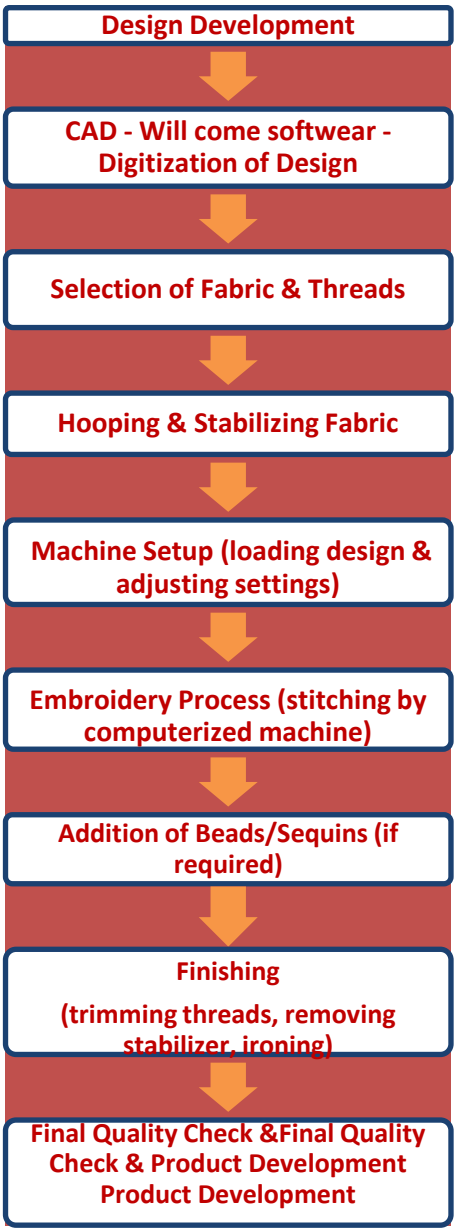
Table - 3 : Machine & brands equipments.[22]

Sl.	Machine equipments	Power / watts	Type
1	Single-head embroidery machine	100–250 Watts	Normal stitching

2	Multi-head embroidery machine	500–1500 Watts	Depending on heads & speed
3	Computer + CAD software system	200–400 Watts	Normal

Table -4 : machine equipment and average power (watts).[23]

Flow chart & Making process



Flow Chart 1: Step-by-Step Process of computer embroidery Preparation.[24]

Making Process of Computer Embroidery

The process of computer embroidery begins with design development, where a motif or pattern is created either manually or through digital design software. The design is then digitized using specialized embroidery software will come name , which converts the artwork into stitch commands understandable by the embroidery machine. Next, the fabric and threads are selected according to the design requirements. The fabric is hooped and stabilized to ensure it remains firm and does not shift during stitching. After this, the machine is set up, with the digitized design loaded and thread colors arranged in sequence.

The embroidery machine then executes the stitching process automatically, following the programmed design. In some cases, beads, sequins, or other decorative elements are added manually or through machine attachments to enhance the embroidery.

Finally, the product undergoes finishing processes**,** which include trimming excess threads, removing stabilizers, ironing, and conducting a quality check**.** The completed embroidery is then ready for use in garments, accessories, or decorative items.

Motifs, Patterns, and Design Development

Motifs in computer embroidery are inspired by traditional crafts, nature, geometric forms, and modern themes. These are developed using embroidery software such as Wilcom, Hatch, or Brother PE-Design, which digitizes artwork into stitch commands. This process allows experimentation with colours and textures, transforming motifs into innovative patterns for garments, accessories, and décor.

Design development:

Image 3: CAD – Embroidery design with leaf motifs on blouse.[17]

CAD – Embroidery Design red pigment : A blouse embroidery design created using CAD, featuring elegant **leaf motifs** arranged in a decorative pattern. The design highlights fine detailing and symmetry, suitable for traditional or contemporary blouse embellishments.

Image 4: CAD – Embroidery design with leaf motifs on blouse neck and front part.[18]

CAD – Embroidery Design

A blouse embroidery design developed through CAD, featuring **leaf motifs** intricately arranged along the **neckline** and extending to the **front part of the blouse**. The composition emphasizes balanced detailing, enhancing the garment's aesthetic appeal with a blend of traditional and modern styling.

Image 5: CAD – Embroidery design with artwork on neck, sleeves, and back side.[19]

CAD (Computer-Aided Design) Embroidery Design: An embroidery pattern developed or digitized using specialized software (such as Wilcom or CorelDRAW) to create precise motifs, stitch patterns, and layouts before transferring to the embroidery machine for decorative garment stitching.

REVIEW OF LITERATURE:

Sarita Devi wrote : describes embroidery as the art of creating images on cloth with colorful threads, producing designs as vivid as paintings. By working along the X and Y axes, digital embroidery can replicate photographs or graphics in thread, making it a highly versatile technique.[1]

Yinglu Wu wrote: explains that WILCOM software enables the visualization of embroidery designs in full color, allowing thread colors to be compared directly in digital form before production. The software, functioning as a versatile tool, supports a single-head computer embroidery machine equipped with 12 needles. This machine systematically pierces the fabric, interlacing threads of different colors to replicate the digital design. By simulating the embroidery process, the software helps translate computer-generated drawings into proportionally accurate stitched patterns. Depending on the required scale, the embroidery can be rendered in different stitch lengths, such as 10 mm, 20 mm, or 30 mm, ensuring the design is precisely incorporated into the final textile product.[2]

Sunanda Rani wrote: Embroidery design beautifully capture the essence of women embroidery artists, highlighting how they use thread and fabric not only as mediums for craft but as powerful tools for self-expression and storytelling. These artists weave their emotions, cultural histories, and personal narratives into their work, creating pieces that carry deep significance. The evolution of embroidery into a feminist art form emphasizes how women have reclaimed and transformed traditional crafts to reflect their voices and identities. This intricate fusion of art, culture, and empowerment celebrates resilience, creativity, and the beauty in everyday life, making embroidery a rich, personal, and transformative art form.[3]

Natalia Anna Michna wrote: Highlights the connection between women's handicrafts and artistic expression, especially in the 20th century, when women combined traditional techniques with modern fashion design. Embroidery, in particular, becomes a powerful medium for artistic and personal expression. By intertwining their craft with philosophical and feminist theories, such as those by Mary Feel, Mary Daly, Evelyn Fax Keller, and Donna Haraway, women have elevated their needlework to a form of intellectual and cultural discourse. Their works of art woven from both thread and thought reflect deep reflections on gender, identity, and the transformative power of craft. This blending of craftsmanship with feminist theory creates an enriched, layered meaning in their embroidery, making it not just a form of decoration but also a visual language of empowerment.[4]

Nurit Wolk wrote: Embodied embroidery in art therapy, craft design particularly through embroideryis a powerful tool for emotional healing and self-expression. Using colorful yarns and various materials, clients explore identity, culture, and personal narratives. Techniques like "ignorance embroidery," which value imperfection and intuition, encourage freedom in emotional expression without concern for technical skill. Embroidery fosters deep textile creativity and can act as a therapeutic ambassador, bridging personal and cultural experiences. In clinical settings, art therapists incorporate this tactile medium to support healing, offering a safe space for storytelling, reflection, and growth through thread and fabric. It is art with heart and meaning.[5]

Case study village Artisan women empowerment:

Kothagudem village : Smt.K. Divya., She is Computer embroidery designer, "Every three months, new students are admitted through notifications for certificate courses. We are committed to making these courses valuable by providing coaching in computer embroidery designing and other related disciplines. Rural

women from nearby areas are showing great interest and actively learning various skill-oriented courses. After completing their training, campus placements are arranged, and many women have secured jobs in Hyderabad. In addition, we extend our support by giving embroidery orders to families who have completed the course, ensuring both employment and financial stability. This initiative not only imparts skills but also creates sustainable livelihood opportunities for rural communities."[6] Women from nearby villages including Pandurangapuram, Jagannadhapuram, Kothagudem, Palvancha, and Gangaram are actively participating. Many have learned skills alongside us, opened beautiful shops, and secured employment through their own efforts. These achievements have strengthened our confidence, showing us that we can grow through our own capabilities. The self-assurance we have gained here is invaluable.[6]
Jaganathapuram Village : Smt. Kavitha Vemula said , computer embroidery faculty, "Working from home is a great opportunity for us to stand on our own feet and aim for greater heights. By learning computer embroidery along with Wilcom software, we gain the skills to grow independently. This training has given us the confidence and courage to improve our financial stability, and it has opened the door to a brighter future."[7]
Pandurangapuram: Mallam Nandhini said: "First, we begin by sketching a drawing on paper with a pencil and then upload it into the Wilcom software. The design is further developed on the computer, where colors are applied and finalized. Once complete, the embroidery machine executes the design precisely as created. This process allows us to make exciting new designs, which we are now applying on sarees, jackets, and other garments. Such innovations not only preserve traditional skills but also set a creative example for future generations. We extend our sincere thanks to the CSR initiative for supporting us in this journey."[8]
Tekula palli : Rajeswari Sudhanapu said: By learning together as a team and exploring new designs, we have reached the level we are at today. Considering the financial conditions of families, we are providing opportunities through computer embroidery training. This enables participants to earn and work from home, creating meaningful avenues for self-reliance.[9]
Kothagudem–DulapudiSunitha said: "Nava Limited, through its CSR initiative, has given us a valuable platform by providing free training in computer embroidery to rural women in Lunch Palvancha. This program has made us beneficiaries of skill development and self-reliance. The organization has taught us computer designing courses, supported us throughout the training, and anchored us with the necessary resources. Because of this support, we now have the courage and confidence to excel in the field of computer embroidery designing."[10] Nava Limited, CSR , which has given us a good platform here, is providing free training in computer embroidery to rural women in Lunch palvanacha and making them beneficiaries. This organization has taught us computer designing courses here and has been supporting us and anchoring us during the training based on the typhoid that it provides. Through this, we have the courage to excel in the field of computer embroidery designing.[11]
GangaramVillage : Joga Krishna Veni said: Now, I can do embroidery work from home without depending on anyone. If the government and NGOs provide me with further opportunities and support, I am confident that I will succeed in computer embroidery work."[12]
palvancha Village - Naveena said: "Currently, there is a high demand for embroidery work in the market. By embroidering each blouse, one can earn between ₹500 and ₹1500. Since society provides such opportunities, my ambition is to think differently and take embroidery as my teacher. I have studied up to the intermediate level, and with financial support from the government, I believe I can establish a reception business and achieve success."[13]
Ashva puramvillage - Safia said: "I got married early and could not afford to remain idle at home. I received one month of free training at the Women's Empowerment Center, which gave me a great opportunity to learn embroidery.[14]

CONCLUSION:

The embroidery process, though simple in terms of machine requirements, delivers highly satisfying results that add unique value. Traditional hand embroidery, while exquisite and time-intensive, often becomes expensive in the market. Digital embroidery now provides a sustainable way to preserve India's ancient traditions. With user-friendly software, digitizing tools, and intelligent workflows, it ensures precision, flexibility, and efficiency—

reducing cost and time while retaining handcrafted aesthetics. This technological shift also creates new opportunities in the textile sector, empowering rural women with meaningful employment and contributing to social and economic progress.

To strengthen India's cultural heritage, it is essential to encourage rural women through skill development and empowerment programs. Reviving traditional embroidery practices alongside digital methods can open pathways for livelihood and self-reliance. By showcasing embroidery textures in exhibitions, training centers, and institutes, we can inspire the next generation to value and carry forward these crafts. With proper support, rural women can transform embroidery into a sustainable profession, ensuring both cultural preservation and inclusive growth.

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Images:

15. Image -1: Women Empowerment through computer embroidery design.
16. Image 2: Threads in various colors – rayon, polyester, silk, and more.
17. Image 3: CAD – Embroidery design with leaf motifs on blouse.
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Table / Flow chart:

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