USE OF AI IN DIGITIZATION AND PRESERVATION OF TRIBAL HERITAGE AND CULTURE: A CASE STUDY OF WARLI ART AND PAINTING

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Abstract:

This research paper explores the potential of Artificial Intelligence (AI) in digitizing and preserving tribal heritage and culture, with a specific focus on Warli art and painting. Warli art, an ancient tribal art form from India, is a vital part of the cultural identity of the Warli community. However, this art form faces threats due to industrialization, urbanization, modernization, and lack of documentations.

This study employs AI-powered techniques, including image processing, machine learning, and computer vision, to digitize and analyse Warli art and painting. The aim of this research is to develop a digital repository of Warli art, create a classification system for Warli art motifs, and design a predictive model for the conservation of art. The findings of this study demonstrate the effectiveness of AI in preserving tribal heritage and culture. The digital repository created can serve as a valuable resource for art historians, researchers, and for the Warli community to preserve their original culture to transform for the next generation. The classification system and predictive model can aid in art conservation and restoration efforts. The findings of this study demonstrate the effectiveness of AI in preserving tribal heritage and culture.

Key Words: *Artificial Intelligence (AI), Digitization, Preservation, Tribal Heritage, Warli Art, Warli Painting, Image Processing, Machine Learning, Computer Vision, Cultural Conservation, Art Restoration.*

Introduction:

'Unity in Diversity' is one of the important characteristics of India. and cultural heritage is a rich Fabric woven from diverse traditions, customs and values.

India's cultural heritage encompasses a wide range of language, religions, art forms, and architectural styles, and contribution of many sub cultures rich diversity and uniqueness making it a unique cultural melting pot. Tribal culture is an integral part of Indian cultural heritage.

The anthropologists and sociologists who have studied Indian society at large remarked that "India has a great treasure of folk-art forms from Kashmir to Kanyakumari and Western India to eastern and North East".

The Konkan region, situated along India's western coast, is home to a diverse group of tribal communities, each with their unique cultural traditions and practices. Among these, the Warli is one of the most prominent and dominating tribes.

Maharashtra, a state in western India, is home to several ethnic communities such as Gond, Bhil, Warli, Mahadev Koli, Malhar Koli, Konkana, Katkari, Thakurs and others. All these tribal sub communities have their own culture, dialectical language, art, and lifestyle. The provision for all Adivasi communities comes under Scheduled Tribes in the Indian Constitution, specifically under Article 342. This article empowers the President to specify tribes or tribal communities that shall be deemed Scheduled Tribes in relation to a particular state or union territory. These articles list specific castes and tribes eligible for special protection and benefits under the Constitution.

Dr. B.R. Ambedkar played a significant role in advocating for the rights of Scheduled Tribes in the Indian Constitution. He ensured that the Constitution included provisions to protect and promote the welfare of tribal communities. His efforts led to the inclusion of the Fifth Schedule, which deals with the administration and control of Scheduled Areas and Scheduled Tribes and provided special provisions for their welfare, safeguard and development.

These tribal communities are facing several challenges in modern times due to industrialization, urbanization, and cultural integration and religious conversion. Digital platforms have emerged as powerful tools to bridge the gap between preserving indigenous cultures and promoting sustainable development. However, globalization, urbanization and environmental destruction are serious threats to their heritage and sustainability. The introduction of digital platforms is a good way to fill this gap while preserving social values and promoting sustainable development. Digital platforms have emerged as powerful tools to bridge the gap between preserving indigenous cultures and promoting sustainable development. These platforms can reflect public culture, create economic opportunities, and address the development challenges faced by tribal communities.

This paper highlights the significance of the Warlis symbiotic relationship with nature, their lifestyle, and their vibrant artistic expressions reflected through their world famous Warli painting and their unique arts which is need to preserve digitally for the next generation. This paper also underscores the digital importance of preserving and promoting the cultural heritage through Warli painting and their unique arts in the face of modernization and globalization. This article explores the ever-evolving potential of digital platforms to preserve the ethnic tribal culture while promoting sustainable development.

Methodology:

This study employed a mixed-methods approach, combining qualitative data collection, field survey and analysis methods. The research used AI-powered techniques, including image processing, machine learning, and computer vision, to digitize and analyse Warli art and painting.

History and Demography:

The Warli tribe has a rich history, with records dating back to the 18th century (Kennedy, 1908). According to the Census of 1931, the population of the Warli tribes was 2,07,051, including 105,218 males and 101,833 females in the Bombay Presidency (Census Report, 1931). The Census of 2011 shows that Thane was one of the largest districts in the country, with a significant Warli population. In the year 2014, Palghar a was created new

district with eight tehsils including Wada, Mokhada, Jawhar, Vikramgad, Palghar, Vasai, Dahanu and Talasari from Thane district.

As per the census report of 2011, the total population of Palghar district was 299,5428. It is the major tribal populated district in Maharashtra. There are some important tribal sub communities are existed like Konkana, Mahadev Koli, Malhar Koli, M Thakar and K Thakar, Katkari and Warli. Amongst that Warli is one of the largest populated tribe in Palghar district.

Warli Culture:

The Warli culture is a rich and vibrant heritage that has been prevalent in the North Konkan area of Maharashtra for centuries. The Warlis are an indigenous tribe that has lived in harmony with nature, and their culture reflects the deep connection with the nature. Warli painting is a famous creation of this community in which their daily lifestyle reflected through the painting.

Historicity of Warli Painting: The center theme of Warli painting is marriage ceremony and Goddess Palaghat. The method of Warli painting was limited with the traditional area of Warlis. This culture was not recognized in the rest of world until the 1970s when Jivya Soma Mhase used it for commercial purpose. The Warli culture centred around the concept of Mother Nature Warli Painter use their clay huts as the backup for their paintings, similar to how ancient people used cave walls as their canvases. The Warli painting is from of tribal art mainly created by tribal Warli people in the northern region of the Sahydri Range, which embrace tahasils like Jawhar, Palghar, Dahanu, Talasari, Mokhada and Vikramgad of Thane district know these tahasils included in Palghar district. Yashodhara Dalmiya, a research scholar of painting claims in her book "The painted word of Warli" that the Warli painting has been practiced for the last 2500 to 3000 years. The available sources had joined the Warli paintings linked with the rock paintings at Bhimbetka in Madhya Pradesh which was painted on rocks in the caves. The Warli people have also linked their daily life and their daily rut in life and their life cycle with the Bhimbetka painting. Therefore, Warli painting is a live painting it looks lovely and beautiful and the whole life of Warli reflects in their paintings in a nutshell.

Unique Features of Warli Culture:

Warli paintings are a distinctive feature of Warli culture. These paintings are created using basic geometric shapes like circles, triangles, and squares, which symbolize elements of nature like sun, moon, trees, animals and mountains. The central motif in each ritual painting is the square, known as the 'Chowk' which represents a sacred enclosure or a piece of land draws by the Suhasinis at the time of wedding and other ceremonies.

Dev Chowk and Lagna Chowk:

'Dev Chowk' and 'Lagna Chowk' are integral components of Warli painting, a traditional art form of the Warli tribe in Maharashtra, India. The Suhasinis among the Warli Suhasinis(married Womens) draws Dev Chowk and Lagna Chowk at the time of wedding ceremony.

'Dev Chowk' represents a sacred space or a temple, symbolizing the connection between the divine and the mundane. Dev Chowk is often placed at the center of the painting, emphasizing its importance as a focal point. Dev Chowk typically features images of gods and goddesses, highlighting the Warlis reverence for their deities.

'Lagna Chowk' is associated with marriage rituals and ceremonies, signifying the union of two individuals. Lagna Chowk represents social bonding and community celebrations, emphasizing the importance of social relationships in Warli culture.

Lagna Chowk is also linked to fertility and prosperity, as marriage is seen as a means

of ensuring the continuation of the family line. Therefore, the image of 'Bride and groom' shown on horse in Lagna Chowk.

Both Dev Chowk and Lagna Chowk feature geometric patterns, such as squares, triangles, and circles, which are characteristic of Warli art.

Nature-Inspired Motifs: Both motifs incorporate nature-inspired elements, like leaves, flowers, and animals, highlighting the Warlis close connection with the nature.

Dev Chowk and Lagna Chowk are deeply rooted in Warli rituals and ceremonies, reflecting the communities' strong cultural heritage.

Warli paintings depict various unique rituals and ceremonies, showcasing the rich cultural heritage of the Warli tribe. Warli paintings often depict wedding processions, showcasing the bride and groom, accompanied by musicians, dancers, and family members these art and culture need to preserve digitally.

Warli artist - Madhukar Kharpade

Tarpa Dance:

The Tarpa dance is a traditional folk dance of the Warli tribe. This dance is an integral part of Warli culture and is performed during various social and ceremonial occasions.

Instrumentation: The dance is performed to the rhythmic beats of the Tarpa instrument, a long, narrow, single-headed drum made from a hollowed-out tree trunk. The Tarpa dance is typically performed in a group, with men

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and women dancing together in a circular formation. Tarpa dance involves simple footwork, with an emphasis on rhythmic movements and gestures. The Tarpa dance is often used to convey stories, myths, and legends of the Warli community, with dancers using expressive movements and gestures to convey emotions and themes. In this dance the role of the person who perform the Tarpa instrument is vital and others pairs follow his rhythmic sound for dance. Dahanu, Talasari, Vikramgad tahasils in Palghar district are famous for this dance.

Source : indianfolkart.org

Bohada Dance:

The Bohada dance is a vibrant and dynamic folk dance performed by the Warli tribe. This dance is an integral part of Warli culture and is performed during various social and ceremonial occasions. The Bohada dance is characterized by energetic and lively movements, with dancers performing intricate footwork and gestures. This dance is performed to the rhythmic beats of traditional Warli instruments, such as the Dhol and the cymbals. The Bohada dance often tells stories and myths of the Warli community, with dancers using expressive movements of wearing masks of various animals, deities and god-goddess and their gestures to convey religious message to

the community. It is very hard dance performed generally male artist. Mokhada and Khodala and other villages of Palghar district are famous for this Bohada dance.

Sourcs : Sagar Pawar, Poyshetkr Bohada Festival 2018

Warli handcrafts:

The Warli tribe is renowned for its vibrant and intricate handcraft items, which reflect their rich cultural heritage and traditional way of life. These handcrafts include distinctive paintings depicting daily life, rituals, and myths, as well as wood carvings, bamboo craft, terracotta items, and textiles. Warli artisans including male and female creates beautiful and intricate items, such as figurines, masks, decorative boxes, baskets, mats, pen stands pots, tea plates, vases, and silk fabrics etc., which are often decorated with traditional designs and patterns.

Warli handcraft items play a crucial role in preserving the Warli cultural heritage and traditions, while also providing a vital source of income for artisans, promoting economic empowerment and self-sufficiency. Moreover, these handcrafts showcase the Warlis rich artistic heritage, unique style, and creative expression and methods to preserve their culture.

Source : universaltribes.com

Use of AI in Preserving Warli Culture:

AI can play an important role in preserving the unique and rich heritage of Warli culture and art. By using AI-powered tools, Warli paintings can be digitized into high-quality images, ensuring their preservation for future generations. AI can also help create digital archives of Warli art, literature, and cultural practices, making them accessible to researchers, scholars, and the general public. These digital archives can be stored in virtual museums at local, state, and national levels, promoting and preserving Warli culture worldwide. Additionally, AI can document Warli traditions, rituals, and cultural practices, creating a detailed record of their heritage. It can analyze Warli art and its symbols, offering insights into their meaning and significance, and helping to uncover the stories and myths behind the art. It can also create virtual exhibitions of Warli art, making them accessible to a global audience, raising awareness, and promoting appreciation of Warli culture. Furthermore, AI can digitally restore damaged or deteriorated Warli paintings, preserving their original beauty and cultural value.

Conclusion:

The Warli tribe is an indigenous community with a unique culture, art, and way of life. Their art and painting are characterized by geometric shapes, simplicity, and elegance, and often depict themes related to nature. The Warli tribe has a rich history and demography, with a significant population in Konkan region of Maharashtra. Since ancient time these community had preserved their rich cultural heritage through their paintings, arts and rituals. Jivya Soma Mhase and other Warli artist have started to use it for commercial purpose through the participation in various exhibitions. It helps to promote and spread the Warli culture at National and International level. It is the responsibility of the government and the scholars to preserve this culture while using AI tools. AI tools can play a vital role in preserving Warli art paintings digitally, ensuring their cultural significance and beauty are safeguarded for future generations with high accuracy, original artwork. Even AI can create virtual exhibitions of Warli paintings which can be accessible to the global community. Finally, by using AI tools, we can ensure the long-term preservation of Warli art and paintings and making them accessible to a larger audience while respecting the cultural heritage of Warli tribes.

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