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A. Published Papers in National & International Journals in Assessment period

SN	Title	Journal & year	ISSN / ISBN No	Whether listed in UGC care list/	Page No.
1.	Banjara Costume in Vidarbha. Page 204-211	International Journal of Researches in social sciences Vol VII Jan 19	ISSN2347-8268	Peer Reviewed	1-9
2.	A Comparative Study on the effect of Natural and Synthetic Cleansing Agent by Using Different Laundering Methods on silk fabrics. Page 125-134	An International Multidisciplinary Research journal- No-40776 AJANTA	ISSN: 2277-5730	Peer Reviewed referred /UGC listed jrnl-40776	10-21
3.	THE STUDY OF THE ROLE OF NGO IN WOMEN'S EMPOWERMENT. Page- 59-63	26/11/20, AARF, VOL-7,Issue 11	ISSN(O)2349-4045, ISSNP(P)2394-4218	Peer Reviewed referred, e-journal	22-26
4.	Digital Printing: advance Methods of Fabric Printing. Page- 52-55	Vidyavarta peer Reviewed International journal Jan – March 2021	ISSN: 2319 9318 IF- 7.940	Peer Reviewed referred	27-33
5	Fashion Designers in India. Page -55-60	Printing area International Interdisciplinary Research Journal issue 87 vol 04	ISSN: 2394-5303 IF- 8.012	Peer Reviewed/ refereed	34-42
6.	Technical and Smart Textiles and their Applications Page-489-494	International Journal of Scientific Research in science and Technology. Jan –Feb 2022	ISSN-2395-6011 IF-8.014	Peer Reviewed/ refereed UGC NO-64011	43-53
7.	Eco friendly Natural dyes and their Applications on Textiles Page 622	Vidyabharati International Interdisciplinary Research journal	ISSN:2319-4979	Peer Reviewed And refereed	54-62
8.	Crisis in Indian Handloom Sector. Page 9	B.Aadhar International publication.Nov- 2022	ISSN- 2278-9308 IF- 8.575	Peer Reviewed/indexed/ refereed	63-69

9..	Creating awareness among Students by Training Program of Warli painting. Page No-408	Itihascharya V.K.Rajwade Mandal , Dhule Dec-2022	UGC CARE LISTED ISSN No. 2394-5990	UGC care listed journal	70-78
10.	Warli Painting: The Impression of Tribal Art. Page 55-60	International Journal of Textile and fashion Designing . IF-7.5392	ISSN online 2250-2378 Dec-2022	Peer Reviewed referred international journal	79-84
11.	The Study of The Role of Human Values in Higher Education. Page 01-06	Smt. V.N.M.MV, PUSAD 28-01-2023	Print ISSN: 2395-6011 | Online ISSN: 2395-602X (www.ijsrst.com)	Peer Reviewed referred And refereed	85-90
12	E-Learning Challenges in Remote Areas in India: An Empirical Study from Teacher's Perspective. Page 121-125	International journal of advance and applied research (IJAAR)	ISSN No 2347-7075 Impact Factor-7.328 Volume-4 Issue-7	Peer Reviewed referred And refereed	91-96

Books / Chapter in Book

	Books / Chapter in Book	**Publisher**	**ISBN**		
1	Documentation of Banjara Costume in Maharashtra Page 47-56	Sustainable Fashion and Textiles – An Indian perspective. Vol I,2022 Harpreet kaur, Pragati publication New Delhi	ISBN-978-81-7307-178-2 Chapter in Book	National	97-104
2.	Banjara Costume in Maharashtra	Harshwardhan publication pvt lmt	ISBN 978-93-85882-65-4 Book	International	105-106

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BANJARA COSTUME IN VIDHARBHA

Vandana B Wankhede[1] and Shital Rathod[2]

ABSTRACT

The present investigation was purposively conducted in Pusad taluka of Yeotmal district of Vidharbha region of Maharashtra state. For this study a total two hundred and twenty one samples were selected. Under these one hundred & two respondents who were living in semi-urban areas and one hundred & nineteen were living in rural areas. For the study four semi urban areas From Pusad taluka were selected viz. 33 were from Green Park locality, 27 from Banjara colony, 20 from Ramgiri Nagar and 22 were from Balaji Park. The effective sample selected from rural areas viz. 29 Ss were from Kawalipur tanda, 32 from Gaimukh tanda, 31 from Manikdoha tanda, and 27 from Jam Bazar Tanda of Pusad taluka. Age and type of dress being used were associated closely. Among the younger generation modern dresses were being used significantly more than what was seen among the older people. Older people, generally those who were above 50 yrs. of age were using traditional costume significantly more than the modern dresses.

Clothing is an art, an expression of personality. In any culture clothes and other forms of physical adornments have a tremendous social as well as psychological impact. It is also believed that clothing originated with an urge to decorate the body.

Banjara women with their colourful dressing make a magnificent show.

Banjara women have their very liking for their artistic embroidery work done on their Kaanchali or Choli. For their artistic work, they use round or square pieces of mirror and which they stitch on their Choli or Kaanchali. The embroidery work naturally attracts eyes of onlookers. Red, brown and green coloured Ghagara and odhani of the same colour. Hence the present study was undertaken to find out the colors, fabrics & designs of the Banjara costumes with the help of following Objectives: To investigate the colours, fabrics and designs used by Banjara in their garments and to study the drafting of Banjara costumes

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Kaanchali

Kaanchali is a word derived form a Sanskrit word 'kanchuki', the upper part of the body which covered by a Kaanchali. It is a colorful and back less bodice with a short sleeves. The Kaanchali unlike the ordinary blouses is made up of several pieces of different colour fabrics and each of these parts is richly embroidered. The front part of Kaanchali consists of Chhati, Petti, Khadapa, Khuppa and Bahi. Colour of Bahi and Khadapa has a contrast combination of colour. Khadapa is usually the most heavily decorated portion of the Kaanchali. Between two Khadapa, there is a piece called Chhati. Khuppa is a small piece attached to both the sides of chhati to give a proper fitting. Petti is attached to the Chhati.

The sleeves are cut on straight piece and attached to the Khadapa. They use short puff or plain sleeves for Kaanchali. The left sleeve has a piece of cloth called Khaviya hanging from the sleeve and joint at the shoulder. This piece is embroidered with many mirror pieces and the lower end is decorated with coins, ghungroos and other metal pieces called 'Thitri'. Metal beads called 'Paara' are also used. The right sleeve does not have the Khaviya, but it is decorated with small white beads, mirrors and tessals. Two of the flaps known as 'Mandav' fall upon the breast. They were meant to protect the breast and the shoulders. Mandavs are attached from the armhole to the neck. The back of the blouse has cords, which are ted at the back to keep the Kaanchali tight. These chords are called "Dori" or "Kasnya" which are decorated with the tassels.

Phetiya

It consists of Lepo, Ghero, and Lawan. The phetiya is a very heavy lower garment made up of fabric of different colours. The phetiya is attached to a thick cloth of about six inches in width and long enough to go round the waist. This piece of cloth is called 'Lepo'. The whole band is embroidered with mirrors and beads. Some times tassels and coins are also attached on it. No hooks and buttons are used to join two ends. The two sides of Phetiya remain unstitched and while knotting on waist two sides comes overlapping. The next piece of phetiya is Ghero, which is blue or black colour of about 9" to 10" in width and attached to the

Lepo. The last part of Phetiya is called Lawan. It is also decorated in different ways.

Odhani

The veil or covering cloth is known as 'Tugri', 'Pamadi', 'Phadki', 'Chaantiya', 'Odhani'. It is the covering side of the head. Both married as well as unmarried women wear this ornament.

The next task was to locate the "TANDAS" of Banjara people situated in rural areas. The "Tandas" selected from rural were – In Pusad Taluka Kawadipur Tanda, Gaimukh Tanda, Manikdoh Tanda, and Jambazar Tanda were selected for the study.

Regarding colour and shades one finds that Banjara women wear faint colour clothes, they are likely to spoil within a few hours obviously, their choice is most likely to be dark colours.

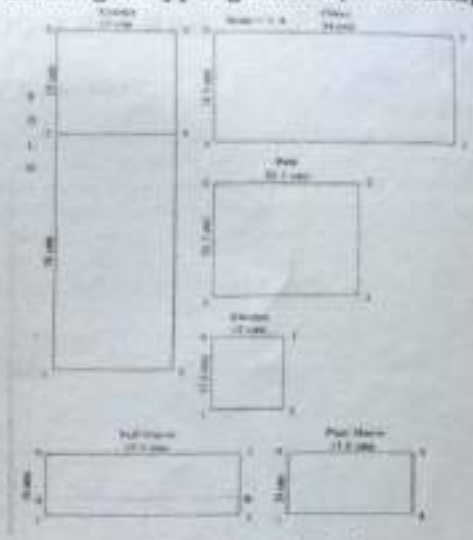
Table 1.1 Fabric, Colour and design used in upper garments (Kaanchali)

Details of fabric		Frequencies (N=85)	Percentage %
Colour Shade	Dark	85	100
	Faint	00	00
Design used	Floral	85	100
	Geometrical	00	00
Fabric use	Printed	17	20
	Plain	5	5.88
	Combine	63	74.12
Type of fabric	Cotton	13	15.29
	Synthetic	72	84.71

It was observed that 100% respondents from this region preferred floral designs. From the results it is clear that plain coloured fabric was the least preferred. In Vidarbha only 5.88%, respondents preferred plain fabric for Kaanchali. Combination of printed and plain fabric was the most popular among Banjaras from Vidarbha, 74.12% respondents were found using such combination.

In the present study, it was found that synthetic clothes were used by large number of respondents for their Kaanchali. For example, in Vidarbha, only 15.29% respondents were using cotton fabric and remaining 84.71% were using synthetic clothes.

Drafting of upper garment (Kaanchali)



Measurment :- Full length – 55 cms., Chest – 70 cms., Shoulder – 34 cms. Sleeve length – 10 cms., Round arm – 20 cms.

Khadpa :- 0 to 1 = Full length
0 to 2 = 1/3 of Full length
0 to 5 = ½ Shoulder
2 to 3 = 0 to 5
1 to 4 = 0 to 5

Petti :- 0 to 1 = V3 of full length
0 to 2 = 1/3 of Chest – 3 cms.
1 to 3 = 0 to 2
2 to 3 = 0 to 1

Khuppa :- 0 to 1 = 1/6 of Chest
0 to 2 = 1/10 of Chest
1 to 3 = 0 to 2
2 to 3 = 0 to 1

Puff Sleeve :- 0 to 1 = Sleeve length
0 to 2 = ¼ of Chest + 10 cms for Knife pleats
1 to 3 = 0 to 2
2 to 3 = 0 to 1

1 to A and 3 to B = 3 cms Strip of Constrast colour attached on 2 to 3

Scale = 1 : 4

Method of Stitching Kaanchali :-

Kaanchali is a fully traditional garment. Kaanchali is stitched by joining pieces together. Backside is called Khadpa. 1/3 portion of Khadpa takes in front side over the shoulder and it reaches up to the armhole measurement. The second part attached to the Khadpa is Chhati. The measurement of Chhati is ½ of Chest. Small strips are called Khuppa attached to the Chhati to get proper fitting for bust and sleeve. Puff Sleeves mostly preferred

for Kaanchali. The third part is Petti, it reaches upto the navel, and it is decorated with teasels and coins. Sleeves are attached to the Khuppa and Khadpa. Knife pleats are used for puff sleeve. Two strings are used as a closure at the backside. One pair attached on neckline and second pair of string attached on waistline.

Kaanchali is fully decorated with glass teasels, embroidery work at the front side.

Analysis of constructional feature of upper garment

For analyzing, the constructional feature of upper While interviewing, the researcher observed the constructional features and arranged them in the following table.

Table 1.2 Constructional details of upper garment (Kaanchali)

Constructional Details		Vidharbha N=85	Percentage
Sleeve length	8 to 10 cms	54	63.53%
	10 to 12 cms	31	36.47%
Sleeve Type	Puff	65	76.47%
	Plain	20	23.53%
Seam	Plain	0	0
	Flat	85	100%
Neckline	V- shape	85	100%
	Other	0	0
Neckline finish	Bias Facing	0	0
	Bias bainding	85	100%
Lining used	Partly garment	0	0
	Full garment	76	89.41%
	Without lining	9	10.59%
Pleats	Knife pleats	65	76.47%
	Box pleats		
	No pleats	20	23.53%
Pockets	Boule pocket	30	35.29%
	No pockets	50	58.52%
Closer	Button	00	00
	Hook	00	00
	String	85	100%
Fabric required	2 Mt. (including lining)	76	89.41%
	1 Mt. (without lining)	9	10.59%

It was observed that in Vidarbha region the respondents were using Kaanchali up to navel height, and their sleeve length varied from 8 to 12 cms. Majority of respondents 63.53% had sleeve length of 8 to 10 cms whereas in case of 36.47% cases the sleeve length was 10 to 12 cms. Two types of sleeves Puff sleeves were used by 76.47% of the respondents, Remaining was plain sleeves. In this region the Ss used flat seam for Kaanchali, and the neckline was V shape in all the cases. In fact V shape neckline was the prominent feature of Kaanchali. An another feature of Kaanchali was that most of the respondents used lining while stitching Kaanchali. Majority of respondents 89.41% used lining despite the fact that more fabric is

required for stitching Kaanchali, when piping is used.

In Kaanchali pleats are used only when puff sleeves are to be stitched. In this region 69.70% and 76.46% respondents respectively used knife pleats. In most cases pockets were inseparable addition to Kaanchali. Very few of the respondents 35.20% were found using bowl shaped pockets.

Fetiya

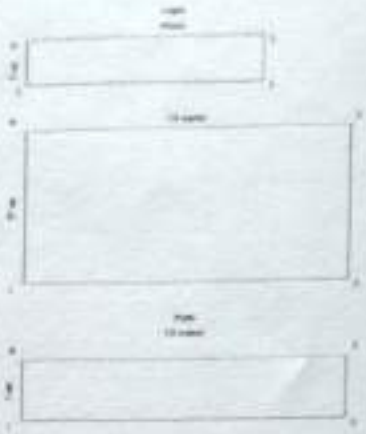
This is the lower garment of Banjara women. Regarding colour and design used there were no variations among the respondents, but in the fabric used large variations were found. There were three options available in fabric-printed, plain, and combination of the two. Very few of the respondents 20% were used printed fabric.

Table 1.3 Lower garment (Fetiya)& their Fabric, Colour and design

Details of fabric		Frequency(N=85)	Percentage %
Colour Shade	Dark	85	100
	Faint	00	00
Design used	Floral	85	100
	Geometrical	00	00
Fabric use	Printed	17	20
	Plain	5	5.88
	Combine	63	74.12
Type of fabric	Cotton	13	15.29
	Synthetic	72	84.71

Clothes for Fetiya are available in cotton as well as in synthetic, but Banjara women prefer synthetic fabric more. From the results it was observed that only 15.29% respondents used cotton fabric, and 84.71% opted for synthetic fabric.

Drafting of Fetiya



Measurment :- Full length upto ankle = 97 cm.

Round waist = 70 cm.

Lepo :- 0 to 1 = 5 to 10 cm. depend upon choice.

0 to 2 = ¼ of waist +5 cm.

2 to 3 = 0 to 1 Join 1 to 3

Ghero :- 0 to 1 = Full length – lepo width.

0 to 2 = upto 10 to 12 meter depend upon the flair required.

After pleating 0 to 2 measurement becomes shorten up to the Lepo

Lawan :- 0 to 1 = 5 cm

0 to 2 = same as 0 to 2 of Ghero

'Lawan', a border of Fetiya. It is also called 'Patti'.

Method of stitching Fetiya

Fetiya is a lower garment of Banjara women. It is divided into three parts. Lepo,Fetiya, and lawan.

1. Lepo is attached to the waist band, contrast color is used for Lepo. Two strings are attached to fit on waist. Sometimes Lepo is decorated with embroidery work.
2. The second part of Fetiya is Ghero. It reaches up to the ankle. Knife pleats are used for Ghero. Nine to 10-meter fabrics is required for stitching Ghero. (see fig.)
3. The Third part of the Fetiya is Lawan. It is like a frill at the bottom. Some times it is used to attach at the bottom as Patti Contrast color is used for frill.
4. The two sides of the Ghagra left free and while knotting, the strings at waist, it is taken on overlapping to one another.

Table 1.4 Constructional details of lower garment (Fetiya)

Constructional Details		Vidarbha N=85	Percentage
Full Length	Up to ankle	85	100
	Up to calf	00	00
Seam	Plain	0	00
	Flat	85	100
Lining used	Partly garment	0	00
	Full garment	00	00
	Without lining	85	100
Pleats	Knife pleats	85	100
	Box pleats	00	00
Pockets	Set in pocket	32	37.64
	No pockets	53	62.35
Closer	Button	00	00
	Hook	00	00
	String	85	100
Fabric required	9-10 mtr	78	91.76
	10-12 mtr	07	8.23

Constructional details of lower garment (Fetiya) :-

It was noted that table no 1.4 shows 100 % respondent found using full length of Fetiya up to ankle.

Seam: -100 % respondents used flat seam for Fetiya.

Lining - lining was not used for Fetiya.

Pleats: -100% respondents used knife pleats for Fetiya.

Pockets: - 34.64% respondents found using set in pockets at the left side of Fetiya where the two corners are joined. 62.35 % respondent did not find using pockets.

Closer: -100% respondents were using string for knotting Fetiya on waist.

Fabric required: - the fabric required for Fetiya was found between 9 to 10 or 10 to 12 meters according the height and liking of the respondent.

Odhani

Only in ceremonies and festivals like Holi, Tij etc. the women found using decorated odhani with Ghungato.

Table 1.5 Head dress Fabric, colour and design used for Odhani

It is to be used like a real covering for the breast, back, shoulder and head. It was called 'Odhani' which literally means a covering. It is draped in different ways. Soft printed cotton or synthetic fabric is used for odhani.

The Odhani is found 3 ½ meter of length of printed shear fabric. Pata, a plain color fabric attached to the border of Odhani and it requires 1 ½ meter fabric.

Method of draping Odhani

One end of Odhani takes in right hand. Then taking on the head the centre of the second corner take at the left hand side, and tucked at the back side of Fetiya .The one end in right hand, also tucked at the middle of back side of waist.

Costumes of Mourning

It was noticed that when married woman dies all the ornaments are removed from the body at the time funeral. When the husband dies the wife takes of 'Ghugri' or ear pendants and 'Choodo' of the upper arm and black beads which are signs of married life. She also removes the nose-ring or 'Bhuriya'. There after she wears 'Odhani' without 'Ghoongto' and Kaanchali without 'Khaviyas' and Mandav. If she remarries, she wears them again.

Table 1.5 Adoption of costume according to age group

Age Group	Rural		Semi Urban		Total
	Traditional	Modern	Traditional	Modern	
20 – 30	0 (0%)	13 (100%)	0 (0%)	25 (100%)	38
30 – 40	2 (10%)	18 (90%)	4 (14.28%)	24 (85.71%)	48
40 – 50	8 (28.57%)	20 (71.42%)	5 (21.73%)	18 (78.26%)	51
50 – 60	19 (67.85%)	9 (32.14%)	9 (69.23%)	4 (30.76%)	41
60 +	28 (93.33%)	2 (6.66%)	10 (76.92%)	3 (23.07%)	43
Total	57	62	28	74	221

$X^2 = 110.37$, df = 12, $p < .01$

It was found that the age group 20-30 years none of the respondents was using

traditional costumes; among those who are living in rural as well as those living in semi urban areas. Only 10% respondents in rural area, in the age group 30 to 40 year were still opting for traditional wear, while remaining 90% switched over to the modern costumes. In semi-urban localities, on the other hand 14.25% respondents were using traditional costumes and 85.72% had preferred modern costumes. This trend could be seen up to the age group 40 to 50 year. However, after age 50 years, especially in rural areas most of the women were found adopting traditional costumes. Still a great number of rural women opted for non-traditional costumes. For example, 22.50% rural women of age 50 to 60 years were observed using modern costumes, and those were 5% respondents who were using non-traditional or modern costumes. In semi-urban areas approximately 10% women of age group 50 to 60 and about 7% respondents in age group 60 + were using non-traditional costume. When these data were treated by using Chi-Square test of significance, the difference among the traditional and non-traditional costumes users was found highly significant ($X2 = 110.37$, df = 12, $p < 0.01$).

Table 1.6 Distribution of responses according to level of education

Education	Traditional	Modern	Traditional	Modern	Total
Illiterate	49	6	19	1	75
	(65.33%)	(8 %)	(25.33 %)	(1.33 %)	
Primary	8	26	9	17	60
	(1.33%)	(4.33 %)	(1.5 %)	(28.33 %)	
SSC	0	18	0	30	48
	(0 %)	(37.5 %)	(0 %)	(62.5 %)	
College	0	12	0	26	38
	(0 %)	(31.58 %)	(0 %)	(68.43 %)	
Total	57	62	28	74	221

$X^2 = 158.92$, df = 9, $p < .01$

It was noted that from the rural areas 65.33% women who were using traditional costumes were illiterate and even though 8% respondents were illiterate, they preferred modern dresses. Interesting to note that only 1.33% who had studied up to primary level preferred traditional costumes; whereas 43.33% opted for modern dresses. In semi-urban areas similar phenomenon is seen. The results are in line with the assumptions of the study. When the data were treated by X2 test of significance it was found that the difference was highly significant ($X2 = 158.92$, df = 9, $p < 0.01$).

Table 1.7 Adoption of Costume by the Respondents coming from different types of families

Type of Family	Rural		Semi Urban		Total
	Traditional	Modern	Traditional	Modern	
Joint	32 (25.10%)	34 (26.77%)	15 (11.81%)	46 (36.22%)	127
Neuclear	25 (26.59%)	28 (29.78%)	13 (13.83%)	28 (29.78%)	94
Total	57	62	28	74	221

$X^2 = 1.06$, df = 6, $p > .05$

From the above table 127 respondents living in joint families 25.19% preferred traditional costumes. This was those who were living in the rural areas. In semi-urban areas 11.81% respondents from joint families preferred traditional costumes. It was expected that the number of respondents from nuclear families giving preferences to traditional costumes should be less. However, those living in nuclear families, among them 26.59% in rural area and 13.83% in semi-urban area were found using traditional costumes. Thus, there was not much difference. Even the results of X2 test indicated that the difference is non-significant ($X2=1.06$, df=3, $p>0.01$).

Table 1.8 Subjects classified according to occupation and residential areas, and their preferences for different costumes

Occupation	Rural		Semi Urban		Total
	Traditional	Modern	Traditional	Modern	
Labour	17 (24.64%)	26 (37.68%)	8 (11.59%)	18 (26.08%)	69
Farming	14	15	6	17	52

	(26.92%)	(28.84%)	(11.53%)	(32.69%)	
Business	18 (31.57%)	8 (14.03%)	10 (17.54%)	21 (36.84%)	57
Service	8 (18.60%)	13 (30.23%)	4 (9.30%)	18 (41.86%)	43
Total	57	62	28	74	221

$X^2 = 11.82$, df = 9 , 9 > .05

From the above table it is clear that large number of subjects either working as labourer or doing business they were found wearing traditional costumes. Not only in rural area , but in semi-urban area also, around 10% of the respondents were still using traditional costumes. The reason is, in villages or in rural areas changes percolate very slowly. Secondly, this is a traditional tribe which have predominance of unscientific thoughts. The result is following the traditions. When these data were treated by X2 test of significance the groups were found differing significantly from each other. ($X2 = 11.82$, df = 9, $p < 0.05$).

Table 1.9 Adoption of costume according to income level

Income	**Rural**		**Semi Urban**		**Total**
	Traditional	**Modern**	**Traditional**	**Modern**	
< 2000	5 (26.31%)	6 (31.57%)	1 (5.26%)	7 (36.84%)	19
2000 – 4000	8 (22.85%)	12 (34.28%)	6 (17.14%)	9 (25.71%)	35
4000 – 6000	18 (30%)	16 (26.16%)	12 (20%)	14 (23.33%)	60
6000 – 8000	15 (26.31%)	13 (22.80%)	6 (10.52%)	23 (40.35%)	57
> 8000	11 (22%)	15 (30%)	3 (6%)	21 (42%)	50
Total	57 (25.75%)	62 (28.05%)	28 (12.66%)	74 (33.48%)	221

$X^2 = 12.36$, df = 12 , p > .05

Is this contradiction really significant or it has occurred by chance only was tested by X2 test. A value of 12.36 was obtained, for 12 df, it is significant at 0.05 level. It means clearly that these results went contrary to the assumption of the study.

Those having income less than Rs. 2000/- per month, among them only 9.09% were using traditional costumes, whereas, those having monthly income more than Rs. 8000/- among them 22.58% wear traditional costumes. In semi-urban area also little confusing results were seen.

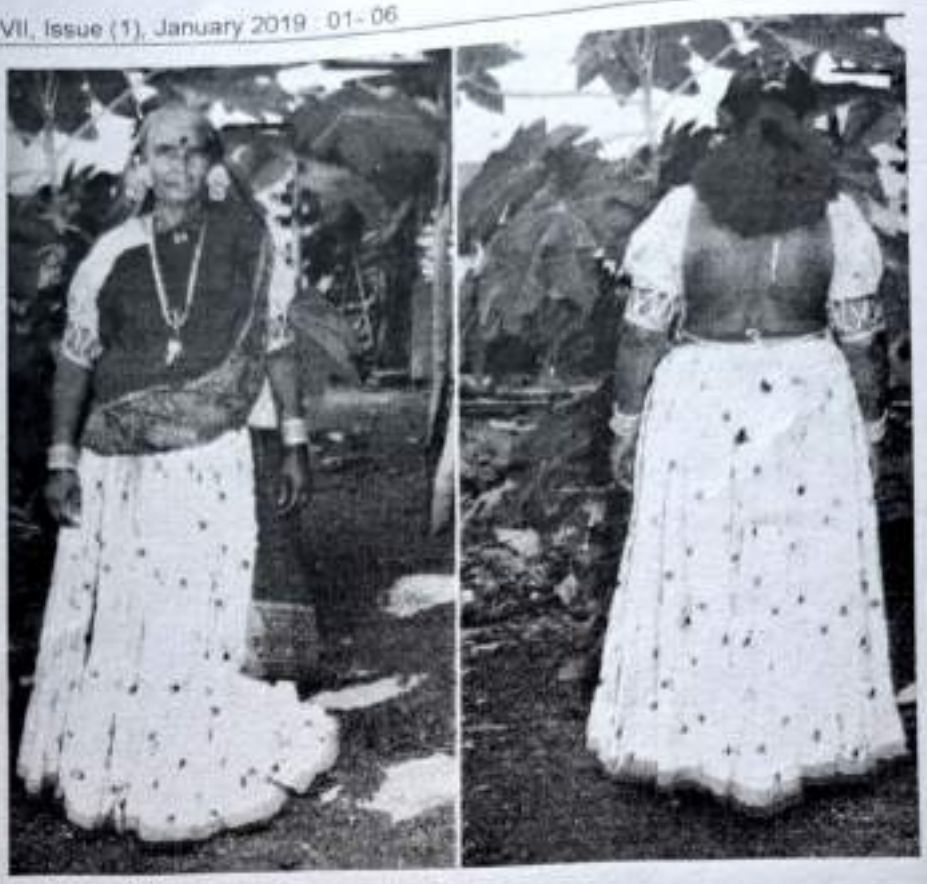
Conclusions

Age and type of dress being used were associated closely. Among the younger generation modern dresses were being used significantly more than what was seen among the older people. Older people, generally those who were above 50 yrs. of age were using traditional costume significantly more than the modern dresses. Education and type of costume being used were closely associated. Those who were relatively more educated preferred modern dresses significantly more than those who were poorly educated or illiterate. Illiterates were giving significantly more preference to traditional costumes. Contrary to the expectations no significant difference was observed regarding the preference of costumes among those who are living in joint families and those who are members of nuclear families.

The association between type of occupation and type of costume preferred, got strong support. Those who were engaged in upper level professions used modern dresses significantly more than those who were engaged in lower level professions.

Income and type of costume being preferred could not show good association. The difference was non significant. No influence of income on the preference of costumes was observed.

Results failed to bring out significant differences in the attitude towards traditional costumes among the Ss from rural and urban areas obtained.



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CONTENTS OF PART - III

22. A Comparative Study on the Effect of Natural and Synthetic Cleansing Agents by Using Different Laundering Methods on Silk Fabric

Dr. Vandana B. Wankhede
Associate professor and Head, Smt V.N.Mahila Mahavidyalay, Pusad

Clothing is the most important need of mankind. The main purpose of clothing is protection against climate. Modesty is the second purpose of clothing. In olden days men used different types of materials for covering their body. Slowly they started weaving by using grass and long leaves. After that they invented natural textile fibres. Such as wool, line, cotton, silk. Among textile fibres silk holds an unique place not only in India but all over the world.

Cultivated silk is second among the animal fibres and may still be regarded as the aristocrate of textile materials.

Silk has shiny, ilustrous, soft texture, attractive appearance and ready availability. It is an animal fibre obtained from silkworm. It has a delicate structure so strong alkali, heat friction are harmful to it. Since it is an animal fibre with nitrogenous content, the alkali, heat hardens the texture and weakens and sometimes damages the fabric. So silk fabric should be cleaned carefully.

Silk fabric is used all over the world not only for ceremonious occasions and festivals but also for daily wear. Because of the delicate structure silk need special care in washing. Surface of the fabric may be destroyed if not washed carefully. Too much friction weakens the fibre and remove its natural luster.

Water cannot alone accomplish the cleaning peocess. It needs cleaning agent like soap to enhance its washing ability. Cleansing may be defined as removal of dirt from surface by means of a suitable surfactant.

The process of laundering as commonly used subject fabrics to the combined action of water, soap, temperature and pressure.

Washing of clothes is one of the oldest household tasks. But many wor
their clothes properly due to the lack of scientific knowledge of the types of
and detergents to be used for particular fabrics.

Today various types of cleansing agents are coming in market. Consumer becomes confused in selection the proper cleansing agent for a particular fabrics. Some are the proper cleansing agent like reeta nut, shikakai, green gram powder, Bengal gram power used in previous days for washing purpose. Synthetic cleansing agents are mosly used by the house-wives than natural cleansing agents.

In previous days when washing was done on rivers edges, it was found that some types of clays or wood ashes when used with water helps then to get their clothing cleaner. After a time they notice that combination of fat with an alkali substance increase their cleansing quality. In 1800 two freneh men chavrell and Lablance discovered the chemical process which is the base of soap-making today.

Soap is a good cleansing agent but do not perform well in hard water. Detergents are not affected by hard water. Soap and detergent should be used carefully.

Because of some detergent includes strong alkalies. They can be harmful to the delicate fabric like silk. Different methods of washing used for cleaning the fabric like silk. Different methods of washing used for cleaning the fabric such as friction washing, squeezing and kneading , washing by machine, dry cleaning. It is essential to confirm which washing method is suitable for washing silk. Because it is a delicate fibre some washing methods can weaken it.

Objectives

1) To see the effect of natural and synthetic cleansing agents on silk fabric.
2) T see the effect on strength of the fabric and colour fastness by using different washing methods.

Methodology

The methodology is subdivided under the following heads

(A) CONDUCTING THE SURVEY
  (1) Selection of sample
  (2) Collection of Data

(B) EXPERIMENTAL PROCEDURE
  (1) Selection of Fabric
  (2) Selection of Natural cleansing Agents
  (3) Selection of synthetic cleansing Agents
  (4) Selection of washing method

(5) Laundring procedure

(6) Finding parentage of Alkali in shop solution

(C) LABBORATORY TESTS

(1) Fabric weight

(2) Fabric count

(3) Breaking strength

(4) Bursting strength

(5) Tearing strength

(A)CONDUCTING THE SURVEY :

(1) **Selection of sample:** The samples were chosen on the basis of random sampling and survey was carried out by questionnaire-cum interview methods.

(2) **Collection of Data :** A survey was done by the investigator to select which synthetic cleansing agents have more demand in the market at present. And second survey was conducted to see which washing methods are used by housewives for washing silk commonly.

(B)EXPERIMENTAL PROCEDURE :

(1) **Selection of Fabric material** : Two meters of silk fabric was purchased from `Rajangandha silk Emporium, Nagpur` The color of the fabric was green. The silk fabric was mulberry silk of silk centre, Bhandara' 12 " X 16 " piece of fabric was taken for each laundering test. And remaining silk fabric was taken for each laundering test. And remaining silk fabric was kept for comparative test.

(2) **Selection of natural cleansing Agents** : Four natural cleansing agents such as Reeta-nut, shikakai were selected on the basis of their acidic nature.

(3) **Selection of synthetic cleansing Agents** : Synthetic cleansing agents such as Nirma and surf were selected. The reason for selecting synthetic cleansing agents is that these synthetic cleansing agents are common in use than natural cleansing agents. Because of some of their good cleansing qualities and providing more foam.

(4) **Selection of washing methods:** Three washing methods Hand friction, Squeezing and kneading and Dry-cleaning were selected.

(5) **Laundering Procedure** : For laundering 1% of soap solution was prepared and poured in water bath. The two pieces of samples of size 12"X16" were cut. Immersed in

prepared soap solution and kept for 10 minutes at about 40° c. Then the samples were taken out and washed by squeezing, kneading and hand-friction methods respectively.

(C) LABORATORY TESTS - For the present study, to evaluate the difference between original and tested samples, the following tests were conducted by the investigator:

1. Fabric weight
2. Fabric count
3. Breaking strength
4. Bursting strength
5. Tearing strength

Result and Discussion

The main objectives this research was to assess to see the effect of selected cleansing agent and different washing methods on silk fabric. The results of this research are discussed under the following heads :

(1) Summary of survey

(2) Results of the laboratory tests.

(1) (a) **Result of Market survey**

20 % Shopkeepers said that in washing powder Nirma was found more preferred because of its cheaper price and attractive advertisements. Surf is also preferred by many people for washing delicate fabric.

(b) **House-wives survey result**

The results of survey on preference of natural and synthetic cleansing agents shows that 40% use natural cleansing agents for washing silk fabrics and 60% use synthetic cleansing agents and all house-wives place the washed fabrics for drying in shade.

(2) Result of Laboratory Tests

TABLE I (a)

Fabric weight (squeezing and heading Methods)

Fabric weight in m. gms.

Sample	Before laundering	After Laundering	Loss in %	't' value
Dry-clean	307	289	6.23	.09
Reeta-nut	307	290	5.53	.03
Shikaku	307	287	6.51	.03
Nirma power	307	268	12.70	.16

Surf powder	307	282	9.44	.09

- Insignificant at 5% and 1 % level

TABLE I (b)

Fabric weight (Hand Friction)

Sample	Before Laundering	After Laundering	Loss in %	't' Value
Reeta nut	307	287	6.51	.03
Shikakai	307	284	7.49	.03
Niram power	307	260	15.30	.18
Surf powder	307	278	9.44	.09

- Insignificant at 5 % and 1%

From the Table Nos . I (a) and I (b) it was observed that weight of all the sample was reduced after laundering.

The samples washed by hand-friction method with Nirma lost maximum amount of weight when compared to other methods of washing along with different cleansing agent.

Student't ' test reveals that percentage decrease in weight is not significant at 5% and 1% levels.

Fabric counts : With the help of pick glass number of warp and weft per inch were counted and results are show in the following Tables :

Table II (a)

Farbric count – squeezing and kneading methods.

Sample	No of Warps per inch	Gain in %	't' Value	No of Sefts Per inch	Gain in %	't' Value
Original Sample	102			97		
Dry-clean	103	.98	3.16**	100	3.09	9.48
Reeta nut	108	5.08	18.96**	104	7.21	22.12**
Shikakai	104	1.96	6.32**	100	3.09	9.48**
Nirma Powder	103	0.98	3.16**	101	4.12	12.64**
Surf powder	109	6.86	22.12**	104	7.21	22.12**

(a) Fabric counts : With the help of pock glass number of warp and weft per inch were counted and results are show in the following Tables :

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Reeta nut	108	5.08	18.96**	104	7.21	22.12**
Shikakai	104	1.96	6.32**	100	3.09	9.48**
Nirma Power	103	0.98	3.16**	101	4.12	12.64**
Surf power	109	6.86	22.12**	104	7.21	22.12**

Table II (b)

Farbric count – Hand friction methods

Sample	No. of Warps per inch	Gain in %	't' Value	No. of wefts Per inch	Gain in %	't' Value
Original Sample	102			97		
Dry-clean	103	.98	3.16**	100	3.09	9.48
Reeta nut	107	4.90	15.80**	104	7.21	22.12**
Shikakai	106	3.92	12.64**	103	6.18	18.97**
Nirma Power	107	4.90	15.80**	100	3.09	9.48**
Surf power	111	8.82	28.44**	105	8.24	28.28**

** significant at 5% and 1% level.

From the Table II (a) & II (b) it was observed that, fabric count of all samples was increased in number of both warpwise and weftwise in all samples. But increased in warpwise was more. In hand-friction methods fabric count was increased than squeezing and kneading and dry-cleaning.

Student 't' test reveals that percentage increased in fabric count is significant at 5% and 1% levels.

Table III (a)

Breaking strength Test(squeezing and kneading)

Sample	Warp wise breaking strength (kg per cm)	Loss in %	't' Value	Weft wise breaking strength (kg per cm)	Loss in %	't' Value
Original Sample	38.03			32		
Dry-clean	35.04	7.57	9.17**	31.00	3.12	3.16
Reeta nut	34.05	9.92	12.008**	31.03	2.18	2.212**
Shikakai	32.02	15.92	19.276**	30.03	5.21	5.372**
Nirma Power	22.00	42.55	51.508**	20.00	37.5	37.92**
Surf power	26.00	31.11	38.868**	25.00	21.87	22.12**

** significant at 5% and 1% level

Table III(b)

Breaking strength Test(hand friction method)

Sample	Warp wise breaking strength (kg per cm)	Loss in %	't' Value	Weft wise breaking strength (kg per cm)	Loss in %	't' Value
Original Sample	38.03			32		
Dry-clean	35.04	7.57	9.17**	31.00	3.12	3.16
Reeta nut	34.05	9.92	12.008**	31.03	2.18	2.212**
Shikakai	32.02	15.92	19.276**	30.03	5.21	5.372**
Nirma Power	22.00	42.55	51.508**	20.00	37.5	37.92**
Surf power	26.00	31.11	38.868**	25.00	21.87	22.12**

** significant at 5% and 1% level

From the table nos III(a) and III (b) it was found that breaking strength of all samples was reduced after laundring. The sample washed by hand and friction method with nirma losed maximum amount of strength. The maximum strength lost in wept wise direction than warp wise direction when compare to other methods of washing along with different cleansing agent.

The Student ' t ' test reveals that percentage decreased instrength is significant at 5% and 1% levels.

Bursting strength

Table IV (a)

Bursting strength (squeezing and kneading method)

Sample	**Bursting strength (** kg per cm)	Loss in %	' t ' Value
Original Sample	10.00		
Dry-clean	9.7	3	.95*
Reeta nut	8.00	20	6.32**
Shikakai	7.8	22	4.04**
Nirma Power	6.2	38	12.01**
Surf power	8.00	2	6.32**

* insignificant at 5% and 1% level.

** significant at 5% and 1% level.

Table IV (b)

Bursting strength (hand friction method)

Sample	**Bursting strength (** kg per cm)	Loss in %	' t ' Value
Original Sample	10.00		
Dry-clean	9.07	3	.95*
Reeta nut	7.00	30	9.48**
Shikakai	7.4	26	8.22**
Nirma Power	6.1	39	12.32**
Surf power	7.9	21	6.64**

** significant at 5% and 1% level.

From the table nos IV(a) and IV (b) it was found that bursting strength of all samples was reduced after laundring. The sample washed by hand and friction method with nirma losed maximum amount of strength. The maximum strength lost in wept wise direction than warp

wise direction when compare to other methods of washing along with different cleansing agent.

The Student ' t ' test reveals that percentage decreased instrength is significant at 5% and 1% levels.

Tearing strength

Table V(a)

Tearing strength (squeezing and kneading method)

Sample	Warp wise mean tearing strength (kgs)	Loss in %	' t ' Value	Weft wise mean tearing strength (kgs)	Loss in %	' t ' Value
Original Sample	1.920			1.600		
Dry-clean	1.680	12.5	.76*	1.560	2.5	.13*
Reeta nut	1.612	16.04	.98*	1.552	3	.16*
Shikakai	1.600	16.66	1.01*	1.440	10	.51*
Nirma Power	1.320	31.25	1.90*	1.040	35	1.77*
Surf power	1.600	16.66	1.01*	1.568	2	.13*

* not significant at 5% and 1% level.

Table V(b)

Tearing strength (Hand friction method)

Sample	Warp wise mean tearing strength (kg per cm)	Loss in %	' t ' Value	Weft wise mean tearing strength (kg per cm)	Loss in %	' t ' Value
Original Sample	1.920			1.600		
Dry-clean	1.680	12.5	.76*	1.560	2.5	.13*
Reeta nut	1.552	19.16	1.17*	1.542	3.62	.19*
Shikakai	1.440	25.00	1.52*	1.408	12.00	.63*
Nirma Power	1.320	31.25	1.90*	1.327	17.00	.88*
Surf power	1.600	16.66	1.01*	1.558	.38	.16*

*not significant at 5% and 1% level.

From the table nos V(a) and V (b) it was found that tearing strength of all samples was reduced after laundring. The sample washed by hand and friction method with nirma losed maximum amount of tearing strength. The maximum strength lost in wept wise direction than warp wise direction, when compare to other methods of washing along with different cleansing agent.

The Student ' t ' test reveals that percentage decreased instrength is not significant at 5% and 1% levels.

Summery and Conclusion

From the result and discussion it was found that silk fabric was subjected to different laboratory tests, such as, finding percentage of alkali in washing agents, fabric weight, fabric counts, breaking, bursting and tearing strength.

Breaking, bursting and tearing strengths got decreased after laundering in all the sample.

The sample was washed by squeezing and kneading methods and dry-cleaning methods was found to be best for laundering the silk articles.

In natural cleansing agents, reeta-nut is the best cleansing agent for coloured silk regarding colour. In synthetic cleansing agents surf powder was found best than NIRMA powder. In washing method, dry-cleaning is the best method for silk. Squeezing and kneading method ranks second.

In natural cleansing method, reeta-nut is best cleansing agent. Surf was found best among synthetic cleansing agents and in washing methods, dry-cleaning is the best method for silk.

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THE STUDY OF THE ROLE OF NGO IN WOMEN'S EMPOWERMENT

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Abstract:

Our society has been male-dominated. Earlier women did not have any kind of freedom, their social and family status was not more than that of a dependent, which needed the support of a man at every step. By the way, since independence, various efforts have been made for the upliftment of women. But, in the last few years, the wind of women's empowerment has picked up the pace. As a result of these efforts, the self-confidence of women has increased. She has started preparing herself to accept any challenge. Women and girls have always been at a great disadvantage in the pandemic due to issues like stigma, mindset, female feticide and infanticide, lack of financial empowerment and employment opportunities, taboos and misconceptions, periods, lack of sanitation facilities, and digital literacy. Many civil society organizations have often taken steps to help empower women in many fields. There has been a huge expansion in the NGO sector in India in the last decade. These people are becoming a special part of the lives of the deprived communities, due to which the lives of these people are changing. Under the leadership of an amazing and dedicated group, the NGO is serving different parts of the country. The empowerment of women is a major issue for some organizations. In this research paper, the role of NGOs in women's empowerment has been studied.

Keywords: Women Empowerment, Financial Empowerment, NGO, Social Empowerment,Social Change

ResearchMethodology:

The research paper has depended on secondary data.

Objective of Research:

1) To study the condition of women and their problems in India.
2) To study the role of NGOs in women's empowerment.

Introduction:

There are approximately 3.4 million NGOs in India working in various fields ranging from disaster relief to advocacy for marginalized and disadvantaged communities. The roles and responsibilities are immense in a developing country like India. NGOs attempt to plug gaps in government programs and reach out to people who are often left out of state projects. In addition, they are engaged in diverse activities related to human and labour rights, gender

issues, health care, environment, education, legal aid, and even research. Community-level organizations and self-help groups are important for bringing any change in society. In the past, such grassroots organizations have been enabled by collaboration with large NGOs and research agencies that have access to foreign funding. There are political non-governmental organizations that mobilize public opinion against the policies and actions of the government. Such NGOs can educate the public and exert pressure on public policy; they act as important pressure groups in a democracy. They mobilize and organize the poor to demand quality services and implement community systems for accountability for the performance of grassroots government officials.

Several civil society initiatives have contributed to some path-breaking legislation in the country including the Environment Protection Act, of 1986, the Right to Education Act, of 2009, the Forest Rights Act, of 2006, and the Right to Information Act, of 2005. Social intermediation is an intervention of different levels of society by various agents to change social and behavioural attitudes within the prevailing social environment to achieve desired results of change in society. In the Indian context where people are still stuck in superstitions, faiths, beliefs, and customs, NGOs act as catalysts and create awareness among people.

Women around us are playing the roles of doting daughters, sensitive mothers, capable allies, and many others with great skill and gentleness. But even today society in many parts of the world ignores their role. Due to this, women have to bear the brunt of large-scale inequality, oppression, financial dependence, and other social evils. For centuries these shackles have been blocking women from achieving professional and personal heights. To bring them to a proper and respectable position in society, the NGO has started emphasizing women empowerment programs which provide a solid foundation to nurture the self-esteem, inner strength, and creativity of women from different backgrounds. This is how women today can handle any challenge in the world based on their skills, confidence, and poise. They are coming forward and establishing themselves as harbingers of peace and positive social change for their families, other women, and society at large.

The Role of NGOs in Women's Empowerment:

Covid-19 may have come before all of us in the form of a crisis, but during this time the efforts of NGOs are not hidden from anyone. All the NGOs have faced this difficult time shoulder to shoulder with the government and have worked to provide services to the people. Non-governmental organizations are doing various types of work for women empowerment with rural women such as girl education, forming and empowering self-help groups, farming for livelihood promotion, animal husbandry, innovation activities in farming, information about government schemes, etc. NGOs are mainly focusing on empowering women socially and economically. Although the status of women is considered very high in society, they always feel themselves backward in some form or the other. NGOs in India have done a lot of work on empowering women and are still doing it. Teaching advanced techniques of farming and animal husbandry to women at the village level, developing leadership capacity in women at various levels, working for girls and adolescent girls, etc. To understand the role of NGOs in women's empowerment, it is necessary to study the work of some NGOs.

Founded by social entrepreneur Rashi Anand, Lakshyam works in the field of women empowerment through skill development and education for children. Lakshyam is working with slum women, providing them with skill training to handcraft cloth bags to earn a living. It has trained more than 8,000 women to make phenyl from cow urine to make cloth bags and sell them in the market. **Anahat** for Change, founded by Purvi Tanwani, is a Kolkata-based NGO working to empower women through self-help groups and address issues such as menstrual hygiene and toilet facilities in government schools, gender-based violence, etc.

This collective effort by five global organizations empowers women leaders at the grassroots level. An effort led by Rise Up, How Women Lead, the Public Health Institute, the Global Fund for Women, and World Pulse, the Collective Impact Partnership works with various leaders of women's organizations in Maharashtra to advance economic empowerment for women.

While the central and state governments have started making new schemes for the upliftment of women, on the other hand, many non-governmental organizations have also started raising their voices for their rights. Efforts are also being made to highlight such a strong spirit in women that they can face every challenge without any support by bringing out the hidden power within. The encroachment of the same boundaries by men is not a new thing, and our male-dominated society wants to keep women in its created circle by giving an appeal to rituals, traditions, and dignity. The NEN was established in 1995 as part of the Beijing World Conference on Women. The objectives of the NEN include gender justice, equality, and respect for human rights. It works on areas such as budget allocation in the gender sector and the safety of women. The organization is active in Assam, Meghalaya, Nagaland, and other parts of North East India. Vimochana is an NGO established in 1979 in Bangalore. It is an activist group that provides a platform for women's rights. Angla, a centre in Vimochana, helps women who approach them to get jobs. Apart from this, if the mother is not able to take care of her child or children then he provides a place in the orphanage as well as medical treatment is provided to the women if needed.

We may have started calling ourselves modern, but modernity has indeed come only in dress and behaviour. But, our society and people are still backward in terms of character and thoughts. The male class wants to keep women under their control like a commodity even today. Today women are easily playing the role of successful businessmen from home. Snehalaya was established in 1989 in Ahmednagar, Maharashtra. This NGO works for poverty-stricken women and children and LGBT communities. It also works for the upliftment of sex workers to fight HIV and AIDS and end human trafficking. Her special projects include producing sanitary pads, providing space for women to create and sell their art, and developing important language skills. Janodaya completed 30 years in 2017. Its objectives include working for the socio-economic development of women. Also, to improve the conditions of destitute women and ex-prisoners. They achieve their objective by helping women learn different life skills and arrive at equitable and legal settlements through mutual understanding.

If women recognize their hidden strengths and try to build a separate and independent existence, then they can be better than men. Women of the modern age are not only equal to men, but in many fields, they are also challenging the supremacy of men. We need to jointly raise our voices toward women's empowerment. The Self-Employed Women's Association (SEWA) was founded in 1972 by Ela Bhatt in Gujarat. Their main objective is to empower women by recognizing them as informal workers. Furthermore, they try to work on the rights of women workers and use non-violent methods of demonstrations. Seva Bank, Seva Andolan, and Seva Bharat are some of its organizations. Till now they have 1.9 million women members who proudly represent their rights. Azad Foundation works for poor women living in urban India who face any kind of exploitation. It works to provide them with a life of dignity and make them independent. At the foundation, women undergo a six-month course that teaches self-awareness, defence training, and reproductive rights, among other things. She has recently started working with Sakha, a citywide cab driver service run by women for women. Established in 2000 in New Delhi, CREA is a feminist human rights organization. It provides platforms to challenge oppressive norms and organize events to

build confidence, and awareness about sexuality and enhance leadership potential among women. It is a part of the International Women's Organization in the South.

Mahila Kisan Adhikari Manch is an organization fighting for the rights of landless women farmers. It is spread over 24 states of our country. MAKAM's mission includes making women self-reliant and independent by empowering them with sustainable livelihood resources such as land. Centre for Social Research (CSR) is an organization established by a group of social scientists belonging to JNU. Centre for Social Research was established in 1983 in New Delhi. It aims to create a violence-free society through social research, capacity building, and advocacy. It works at three levels, local, regional and national, helping to build better systems for gender equality. Started by Ritwika Banerjee, Swaniti bridges the gap between local realities and elected systems. Working exclusively with rural India and rural women, they help formulate solutions and policies for elected representatives and aggregate government schemes. In his on-ground research, research is done on rural India and at the same time their difficulties are understood. NGOs can be effective. She is instrumental in programs to mobilize support for issues, leadership development programs, and educational initiatives to educate women about their rights. To make a successful strategy for women's empowerment, alliances have to be made between women in many fields. These include political parties or governments, non-governmental organizations, businesses, media, etc.

In India, to empower women, first of all, it is necessary to kill all those monstrous thinking that kill their rights and values in society, such as the dowry system, illiteracy, sexual violence, inequality, female foeticide, domestic violence against women, Prostitution, human trafficking and so on. The real meaning of women's empowerment will be understood when they are given a good education in India and they are made capable that they can take independent decisions in every field.

Conclusion:

The increase in governmental and non-governmental cooperation helps in making the public more and more aware of their rights and connecting them with their rights, and in the long run, it opens up new avenues by determining transparency and accountability in public affairs. Women in India have worked for women's empowerment through various organizations. Indian women became self-reliant after getting an education and worked for the upliftment of women through many institutions. He alerted everyone to the development of the social, economic, cultural, and political vision of women. Today, due to the efforts of many non-governmental organizations, poor and uneducated women got information about the benefits of legal rights and self-reliance. All these women's organizations have made arrangements for adult education centres, vocational education centres, tailoring centres, working women's housing, home for old age, homes for the neglected, etc. Many women's non-governmental organizations in India are striving for women's empowerment. NGOs are trying to bridge the gap in government programs and provide services to those people who are often left out of government schemes. Many NGOs are engaged in diverse activities related to human and labour rights, gender issues, health care, environment, education, legal aid, and even research.

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Digital printing: advance methods of printing

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Abstract:-

Fabric printing is the process of applying colored patterns and designs on to fabric. In fabric printing one or more colors are applied to it in certain parts only, and in sharply defined patterns.

In the textile industry, the majority of fabric printing is done in traditional method but there is a growing interest for digital printing on fabrics.

While fabric is still about clothing and home-use fabrics, the fabric industry as a whole is one of the largest printing industries in the world with great diversity. Digital Textile Printing (DTP) is the most modern technique of textile printing. By this technique, we can print textile material without using any block or engraved roller or screen but with better prominence of images. There is lot of flexibility of working as we can easily change the colors if it does not match with the sample within a few seconds.

The demand for Digital Fabric Printing for apparel and home furnishings is rapidly growing owing to the numerous technology developments and increasing adoption of the technology. The digitally printed textiles have high quality of the print with high resolution, fine patterns, Flexibility in printing and unlimited color combinations. Very bright prints are possible. Unlike rotary screen printing, there is

no restriction for number of colors.

Introduction:-

Today is the world of digitals. The textile and apparel sector could witness paradigm of changes to produce qualitative product, speed up their production and effective management practices through introduction of computers. One of the most revolutionary developments in the textile industry in recent years is the introduction of digital textile printing. It has opened several opportunities to speed up the production to meet the growing demand, enhance the quality of the product and address the water and environmental issues by reducing the water consumption and thereby reduce pollution. This process was patented in 1968 itself, but due to the cost involved, the industry has not adopted the same. But due to the environmental protection issues, the manufacturers are in favor of digital printing on textiles. The development that occurred in the last few years has open several opportunities in the field of digital printing.

Digital textile printing is similar to printing on paper with a computer printer. Using this simple technology anything can be printed on fabric. As per the industrial records, digital textile printing is contributing 1 % of global demand for printed textiles which may grow up to 10% in next 5 years.

Few European countries, especially Italy, Turki and Spain along with Brazil and India have incorporated digital textile printing reducing their production on regular screen printing or rotary screen printing. The digital technology has already become an attractive choice for major textile applications of printing apparel fabrics, home furnishing, textiles for interiors, technical textiles and point of purchase displays signage and so on.

Digital textile printing is considered as 'next generation printing' as it is entirely different from the conventional method of producing prints on fabric. In India, the textile industry is Imran Singh textile digital printing technology by creating and printing novels designs on sarees and dress materials to meet the demand both from domestic as well as international markets.

Advantages of digital textile printing:

- Print on demand, print as much as you need.
- Low cost start up: unlimited repeat size is possible such as landscape design, signage's etc. Contrary to rotary screen printing wherein the repeat size is limited to the circumference of the rotary cylinder. Samples are made easily and quickly as there is no need to make screens and print samples. Therefore, the cost of sampling is low.
- Needs less operational space
- Quality of printing: high printing accuracy, sharp printing. The ink for printing is used precisely without any spillage.
- Savings on electricity.
- Reduced water consumption:- Their seems to be high savings in terms of water and energy as there is no need to wash the screens and use amount of water.
- Lower need of resources enables faster production cycles.
- Fashion designers can print low quantities, increased number of niche products hence more creativity in apparel industry.
- Personalization of home and household fabrics according to consumer requirements: flexibility in customizing the personalization of digital print requirements of the customers specially in the home textiles.
- Needs less education as compared to traditional printing.
- Wide range of Color variety, unlimited colors: The pics caused arlo due to lack off screen engraving and color separation.
- Cost savings from absence of ongoing need of plates or drums.
- Print short runs without any preparation: As there is growing demand for digitally printed textile worldwide, there is no need for keeping

the stocks.

• Short time needed to design a textile print pattern

• Low inventory levels for fabric, ink, and other chemicals: no disposal problem due to lack of excess die and chemicals that harm the environment. Hence, they are termed as eco friendly.

• Reduced time to introduce new designs or garments, less. Time needed to get the product ready for market (Fast Fashion): easy to produce products incorporating customers ideas into the market in the short time irrespective of the season.

• Low cost for making a prototype of an apparel

Drawbacks of digital textile printing process:

High speed of printing is not possible at present even though, digital printing companies are trying to address this drawback. Since there is no need to make screens or cylinders, the time spend on this is used for making the continuous printing. The cost of printing is another limitation at present but it may over come in near future.

Digital textile printing process:

It is a process of transferring an image or design on to a fabric using a large format inject printer. The process of digital printing consists of few steps like the other printing methods.

The raw material required for this printing process is:

Design Development: First the design or motif is converted into soft file from the paper. Designs can be developed in two ways. Firstly, by digitization process and secondly pictures may be scanned directly if no change is required. Then the created file is saved in printer compatible format. Whatever changes is needed in terms of color combinations, brightness of the images is done in this stage.

Fabric: The type of fabric suitable for digital printing depends on the surface characteristics of the fabric. Generally fabrics with smooth texture and without machines on the surface are suitable. Since the ink where is with the type of fabric, the machine setting also need to be changed. Fabric needs to be processed before going for printing. In this stage fabrics are padded with chemicals, generally sizing materials are used. It helps to remove the fabric crushes and makes it stiffer for better feeding during printing. Padding is done on the flat bed with the help of scrapper. Natural fibers such as cotton, linen, silk, wool and manmade synthetic fabrics such as viscose polyester, nylon etc are suitable for digital printing. Blended and union fabrics are also printed satisfactory using this technology. Generally, the machines can only scatter to print one type of fiber as the ink cannot be mixed and used for printing. Other blend such as cotton- viscose polyester-lycra polyester- wool polymer- lycra' silk blends can be printed by selecting a high bland ratio of one of the fiber in the blend.

Printing: By the help of the printer server images are printed on the substrate by using proper dye classes and printed fabric is then properly dried. First, fabric is set properly without any looseness and creases. Then the head of the printers are set according to the fabric thickness.

Printing ink: the manufacturers of inks for digital printing are able to produce different types of ink suitable for targeted fabrics.

1. **Reactive dye based Ink are** ideal for printing cotton, jute and silk. This inks exhibits good light fastness besides producing bright colors. The Boss first news is also good due to the chemical bond created between the fiber, polymer and the dye molecule. Pre treatment is required for fabrics before printing to ensure proper dye with the fiber. After printing, the dye needs post treatment with streaming to fix the die and then washing.

2. **Acid dye based inks** are intended for printing nylon silk wool and leather. The main applications of these printed fabrics are

sportswear, swimwear, lingerie, flags, banners and accessories such as ties, scarves and others. This inks processes good light and watch fascines due to strong bonds created between the fiber and the dye.

3. **Dispersed by based inks**: These inks are specially produced for polyester fabrics. The ink and also be used on lycra and other spandex fibers. This type of ink print is not as bright as reactive or acid based ink prints.

4. **Pigmented inks:** these inks contain pigments and not dice for coloration. Raisins/binders are required to fix the die on the surface of fabric as there is no chemical reaction between the ink and the fiber. This allows its application on winder range of fabrics and end use performance. The excellent light fastness of pigments is an added advantage for its use on outdoor fabrics. The proportion of the binder and the pigment content should be carefully chosen based on the type of fabric and the end use. Simple UV curing or exposure to heat is required to fix the ink on fabrics. The fabric feel should not be altered after printing.

Selection of printers:

Many types of digital fabric printing machines are available in the market. Based on the type of ink and fabric feeding mechanism they are classified under three categories.

Class 1: This type of printers are paper to fabric printers. The printer utilizes sublimation / disperses dying in combination with transfer papers. The speed and size of these printers are customized as per the market trends. The curing is done using either heat press or heat fixation calendars. The applications include sportswear, soft signage and heart surface products.

Class 2: These are classified as direct to fabric printers. The printer is like class one printer but with a gutter of printing strike through. The ink used is sublimation/disperse dyeing that directly prints non stretch treated polyester fabrics. Curing is done with a role fixation calendar. The applications include banner printing, sportswear, signage and cut pieces of apparel manufacture.

Class 3: This printers are designed to cater to stretchable fabrics. Synthetic and natural fiber blended fabrics with more stretch can be printed with the use of class three type of printers.

Software applications in digital textile printing:

Color management system
Ruster image processor (RIP)
Printer driver software, design layout software

Steps in digital textile printing:

1. Design development: The first step in digital printing is to look for the design. The artist creates an image in any graphic design mode such as Adobe illustrator and formats it as a tagged image file format or TIFF file. This file format is preferred by artist as it stores all details of the image then JPEG format, even though it takes up more space than JPEG images. Alternately, exciting artwork or original drawings of the artist can be scanned and used as images. The image options are endless, it can print anything on fabric, plastic films etc.

2. **Pre treatment to fabric: The fabrics are pre treated to get ready for receiving the dye. The type of treatment depends on the type of fiber present in the fabric.** These pre treatments are required even for other mechanical methods of printing. For better absorption the fabrics are sometime spaded with the required chemical.

3. **Printing process:** Once the pre treated fabric is ready, it is faith through a print the printer by one of the two mechanisms finished in the printer. The design or image is printed on fabric in the form of tiny droplets. The fabric is there in finished using either steam or dry heat to fix the dye. Then it washed, dried and calendered.

Conclusion:

Digital textile printing is a growing market and will continue to grow as a viable mainstream option in textile printing. It may take over the conventional printing in near future due to eco friendliness of the process and the brightness of the print.

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increase due to changes in the economic order and other factors. Under the effect of modernization, the traditional agencies of socialization and social control which contain the behavior of juveniles within socially approved limits tends to break down. Finally, the sting of economic deprivation increases with the rise of affluence, so that the 'have-nots' grow more resentful of their place at the bottom of the economic heap. Their sense of being unjustly deprived grows as they compare themselves to others who are not so unfortunate. In Toby's (1979) words, "People steal not because they are starving, but because they are envious and they are more likely to be envious of the possessions of others in countries with rising standards of living".

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Fashion Designers in India

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Abstract:-

The history of fashion begins with early human, who utilized things like leaves, animal skins and shells to adorn their bodies with them.

Fashion refers to the styles and customs prevalent time to time.Many fashions are popular in many cultures at any given times. Fashion reflects a complex variety of commercial enterprises all directly connected with each others. The countries development, progress and the richness are often attested by the evolution of clothing.

Fashion designing is the art dedicated to clothing and lifestyle accessories created within the cultural and social influences of a specific time.

India has rich diverse and unique textile tradition. In India weaving is well developed craftfrom the Indus valley civilization. India has strong traditions in the making, dyeing, printing and embroidering of cloth as is evidence from historical records. The Indian textile reflects the cultural richness and adaptability of the country.While previously a master weaver was recognized for his skill.Today fashion designers are celebrated for their creativity. Today Indian fashion designers are inspired by both Indian and western style.

A fashion designer in country arranges mega events like Indian fashion week and annual show in metro cities.

Introduction-

Fashion in India covers a whole range of decorated clothes designed for wedding ceremonies to sportswear and casual wear.An Indian Traditional costume dependson the climate and natural fibers grown in a region. In the present fashion scenario Indian fashion has already made its mark on the global map.These designers are creating fashion to suit both Indian and western styles.The top Indian fashion designers are travelling different countries and making our country proud repeatedly by infusing Indian designs sensibilities with modern technologies. Indian designers are the trail blazers who gave a new dimension to high class fashion.

Let us know about the most leading designers in India and their creations.

RITU BERI : -

Ritu Beri is an Indian fashion designer born in Delhi. She was graduated in Economics from Delhi University in 1987. She was amongst the top 25 student from NIFT. She created a collection in her graduation and with them started a studio" LAVANYA"in December 1990. She achieved grand success with this collection even in the fashion at London's regent Street. Her collection "SANSKRITI"in 1995 was a breaking way of tracing her roots in the fashion industry. This was a cultural heritage in retrospect she divided her collection into four sequence. She was made her mark in this century's greatest peacetime event. She designed for Atlanta opening ceremony by creating a special collection.

Ritu also known as "The First lady of fashion". She became the first Indian to have presented her first collection in Paris in 1998. She was also invited by Swarovski to present her "summer /spring 2000 collection" at Vienna. She published fashionbook "101 ways to look good".

She has authoredbook named "Firefly-A Fairytale", costing rupees 1 lacs. She designed the most expensive doll,the **Barbie**.She is the first Indian designer to head a French label, "The jean Louis Scherer."

She has also been a consultant for London Harrods store and various international brands like Volvo, Swarovski and Honda motors. She got a millennium achievers award, SHIROMANI in 2000 and**Global Excellence** award in 2004.She was honored the **Kalpana Chawla Excellence** award is 2007 for excelling in her area of expertise.

She got the noted Spain honor Order of civil merit in 2014. Ritu Beri has also started the kids clothing line by the name of **Baby Beri.**

MASABA GUPTA ...

Masaba the daughter of Neena Gupta and Vivian Richards is among the promising young crop of designers that have the spark to take the Indian fashion to new heights at the international level.

After graduating from SNDT Women's University she studied Apparel Manufacture and Design. She launched her label "**MASABA**" in 2009.At the age of 19 she made her debut at Lakme Fashion week.Masaba has won many awards like **2012' LOreal Paris Femina"** award for Best Emerging Designer and **PETA** India's Most Talented Designer of2013.Many Bollywood stars like Bipasha Basu and Shilpa Shetty have worn her designs.

She worked with weavers from many remote areas in India like Himachal Pradesh, Ban-

galore and Hyderabad and created woven designs.

The fabrics used are lightweight, easygoing,and outlandish prints in vibrant colours with comfortable and fuss free garment construction in the main area of expertise. Masaba Lite is an all new affordable line aimed at teenagers it is a vibrant young Peppy but pocket-friendly line set to retail in the summer across our stores and select outline portals. The biggest plus of the silhouettes are that they are age versatile as well as those that can be easily worn around the world.

Masaba Lite is spread across various categories and silhouettes that encompass a young girl's life.Totally dedicated to teenager's requirements she also designs night wears and accessories like eye patches to make sure to get chic look. They also used iphone type of quirky prints on their garments to look trendy.

ANAMIKA KHANNA:-

Anamika Khannais Indian fashion designer graduated in Loreto women's college, Kolkata. She started her carrier in 1998, since then she achieved the highest level in fashion world. Anamika launched herinternational label"**Ana Mika**"and presented hercollectionat Lakme Fashion Week grand finale. She has been covered by the Business of Fashion for being the Indian designer who has blended traditional Indian textiles and techniques with Western silhouette and tailoring.She was also invited Pakistanto participate **Bridal Asia** exhibition to show her bridal collections.Her creations are sold all over the world. She displayed her collection at Paris fashion week in 2007 and with Manish Arora in 2008. She presented her signature cowl-shaped dresses that were similar to dhoti worn by Mahatma Gandhi in HDIL India Couture Week.Anamika also participated in the Will's Lifestyle Fashion Week Grand Finale, Autumn/Winter edition, Lakme Fashion Week (2009), The India Premier London Fashion Week's(2010)

Sonam Kapoor walked the ramp for the first time and she was wearing a golden cowl-shaped gown decorated with embroidery zardosi with a top adorned with Muquaish work

In 2010, she was offered a contact by British Giant Harrods after participation In London Fashion Week. She displayed her collection at Lakme summer resort with a mark both male and female touch. Anamika displayed her creations at the Lakme Summer Resort 2011 and stunned the audience by adding a sense of masculinity to an ethnic women's wear collection and win the **Audi RITZ Icon** Award. In 2011 she was also selected by 'India Today' as one of India's 25 most powerful women.

At the Delhi Couture Week 2012, she showed her creation signature dhoti-pants together with sari drapes and floor-length jackets. At the CPJ Delhi Couture Week 2013, she showed her creation capes, shararas, gilets, vests and coats with a color combination of black, white and gold.

In 2015 LFW she introduced lip colors like dark burgundy and geometric shapes in the form of golden leaves starting from the temples and ending at the inner side of the cheekbones.

Anamika designed the 10 kg velvet Lehenga that was decorated with gold, silver and pearls and was given as a gift by Simi Garewal to Lady Gaga – her celebrity guest at her talk show: 'Simi Selects. Anamika designed the costumes for a number of bollywood films like Prem Ratan Dhan Payo, Bhaag Milkha Bhaag, Mausam, Fashion, and Aisha.

NEETA LULLA : -

Neeta Lulla is the fashion designer and stylist who designed costumes in more than 300 Bollywood films.Shehas been teaching fashion for the last 26 years and has been designing wedding costumes since 1985. She designed costumes for wedding of Aishwarya Rai's and Abhishek Bachchan in 2007.She also designed for Rahul Mahajan's young bride Dimpy Ganguli. She became most famous when actresses Aishwarya Rai and Madhuri Dixit wore her costumes in Devdas a blockbuster film in 2002. Neeta Lulla has designed for Shilpa Shetty, Aishwarya Rai, Sridevi, Sapna, Salma Aaga, Divya Bharti, Isha Koppikar, Aishwarya Rai , Madhuri Dixit, Juhi Chawla and many more actresses in south Indian films. She also designed for films Mohenjo Daro and Tollywood film Gautamiputra Satakarni in 2016.

Neeta designed Paithani shaloo, the very old technique of decorative fabric that combines multiple threads of different colors and incorporates gold and silver threads woven together to create a dynamic piece of silk. Her collections of Paithani were displayed at make in India initiative in Feb 2016. At this show she showcased a wide range of pieces including flowing lehangas, long kurtas, jackets, dhoti pants, sarong skirts all of which were embroidered according to the Paithani style.

Neeta with Subhash Ghai opened the **Whistling Wood International School** of Fashion in Mumbai. The school offers a selection of courses in fashion, merchandising and online marketing.

EKA LAKHANI:-

Eka Lakhani is Mumbai based fashion designer, who has worked in the Hindi and south Indian films. She has been a child artist and acted in the film Abhay and won Best Children's Film Award (Swarna Kamal) at the 42nd National Film Awards 1994. She graduated at SNDT Women's University, Mumbai and then spent a year at Fashion Institute of Technology, New York. She assisted designers during New York Fashion Week. At the age of 23 she work as an intern with fashion designer Sabyasachi Mukherjee in Mani Ratnams film RAVAN. She has also worked as costume directors in projects byRajkumar Hirani, Karan Johar and Gautham Menon. She designed the costumes for Malyalam film URMI(2011), Kadal (2013), Kaatru Velliyidai(2017), Ponniyin Selvan (2022), Vaanam Kottatum (2020), Before designing Eka travelled to Tanjore temples to study sculptures, meet weavers, and understand the heritage. Eka often worked on biopics as Sanju (2018) and as Jayalalithin web series Queen (2019). To prepare for biopics, she often met people involved on the stories to better reflect their fashion sense during the respective historical periods.

ANITA DONGRE:-

Anita wasborn and brought up in Mumbai. She studied fashion design at SNDT. She launched her**Jadau fine jewellery brand Pink City**, She is the founder of **"ANITA DONGRE" fashion House**. It contains four different brands, **AND** a western wear, **Global Desi**, a contemporary line, **Grass root** a sustainable luxury and **Jewellery line pinkcity**.

She received **GR8 Flo Women Achievers Award** for 'Excellence in Fashion Design' in 2008. The Federation of Indian Chambers of Commerce and Industry Ladies Organization, Bombay Chapter, presented an award to Anita for **'Excellence in Fashion Design'** in 2013. **EY** (Entrepreneur of the year) award in 2014.

MANISH ARORA :-

He was born and brought up in Mumbai. While graduating degree in commerce he took immense interest in fashion. He graduated from NIFT with the best student award in 1994. Manish launched his first label "**Manish Arora**" in 1997.Often termed as" John Gilliano of India'. Manish Arora is known for his unique choice of colours along with his signature palette of pink and golds.

He has made his mark not only in the domestic market but at the international level as well. He is among the first to showcase his collections internationally while bringing out the colours of Indian fashion.

Manish has collaborated with various Indian and international brands such as Swarovski, Walt, Disney, Barbie Reebok, Swatch, Nespresso, monoprix, MAC cosmetics, Nivea Amrapali, and Pommery etc. Manish is among the few Indian fashion designers to be appointed as the creative director of the French fashion house- Paco Rabanne in 2011.

ROHIT BAL:-

Rohit Bal is known as "Indian master of fabric and fantasy".

He was graduated in History from New Delhi St. Stephens College with first class. At the age of twelve he designed his first outfit a pair of corduroy bell bottom with tussle. Many years he was working with his brothers Export Company. He was inspired from history, fantasy and folklore . Rohit Bal created his first line traditional designer wear for men in 1990. Rohit Bal successfully arranged international fashion shows in America, England , France ,UAE ,Singapore, Mauritius and all metro cities in India including New Delhi, Mumbai, Chennai ,Bangalore and Kolkata.

His experiments with different colours following the golden rule. i.e light for the day and heavier for evening. He uses matching colour of lingerie to the dress and hem. These are some of the tips that he adopts while designing and presenting which attracts the media.

When Omega Company launched their watches in India, they chose Rohit Ball as an ambassador. His shows were sponsored by Omega in India and in Paris as well.

Rohit Bal also chosen by the Khadi Gramodyog to collaborate with khadi and design collections to sale in all their outlets. In 2001 he was awarded the designer of the year at the **IFA** fashion award and the **Kingfisher achievement** award. We can say that he is really the "**India's MASTER OF FABRIC FANTASY.**" Rohit has a deep understanding of the psyche of the fashion world and it reflects in his collections that are intelligent, studied, imaginative and completely innovative .

His collection has been met with an incredible and enthusiastic response, His mile stone includes a creative partnership with international shoe designer.

His work is handcrafted to perfection. High value collaboration with conran store and other lifestyle stores such as Crate and Barrel anthropology and the likes.He was also sign on as the brand ambassador of Chivas. He designed carpet collection for the international carpet company EGE.

He is considered a Mavericks talent. The designer is well recognized around the world and in times ahead will aggressively expand his presence internationally.

From last eleven years he is the most successful ambassador for Linen Club a Aditya Birla group company.

Rohit has been showered a word of praises such as best designer of men and women's Wear, best show presentation, best designer pret a porter, Men's and women's wear best designer couture and the most recent award for Hello Magazine ,contribution to fashion ,GQ awards for best designer and best designer counter Elle etc.He has also conferred the Shiromani Award and the Best Mens wear designer at the inaugural India fashion awards.

Today fashion designers like Ritu Bery, Ritu Kumar, j Vallya etc. are India's proud identity on the world fashion forum. They are portraying our creative talent and rich heritage.

All these designers are Indians proud identity on the world fashion forum. They are portraying our creative talent and rich heritage.

All designers require motivation, suggestions and inspiration to design for a new season. They have to reinvent the world around them to get inspired from the same sources of indifferent ways. At times, research is also required to get new ideas from various sources of fashion inspiration. Nature, Media, Internet, Lifestyle Forecast, Museums and monuments, Heritage, Fine art, History, designer's library, Fillings of designers are the common sources of inspiration.

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Technical and Smart Textiles and their Applications

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ABSTRACT

Technical textiles have been idealized to be one of the most active energetic and promising areas for the textile industry. The advancement of polymer, fibers, yarns, chemical technology and fabric technology are there driving forces for the development of technical textiles. The industry is coming into view because people are now ready to spend the money on achieving comfort in their tough life. Technical textiles can satisfy those needs that cannot be fulfilled by traditional textiles. Textiles with naino materials and much more with textiles it will be possible to offer innovative solutions for global problems such as pollution, health issues transport protection communication.. Smart textiles are the most exciting innovation in the field of textile engineering. The development of smart textiles reaches for beyond imaginations some storage maybe scene science fiction. The economic value and impact of smart textiles are gigantic. The advent of smart textiles makes it possible to be the traditional textile sector to a level of a high technological industry. Moreover it appears that this is only possible by intense cooperation between people from various backgrounds and disciplines such as microelectronics, computer science, material science, polymer science, biotechnology.

Keywords :- Smart Textiles, Technical Textiles

I. INTRODUCTION

Textile products manufactured primarily for it performance and functional properties rather than aesthetic or decorative characteristics. The primary function of textile is to shield humans but with advancement in technology. Textile industry is rapidly developing with varied special features in addition to its primary function. The demand to smart materials and intelligent textiles grows increasingly all over the world. In other words, technology has also taken control of textile industry. Smart textiles have superior performance and functionalities

for the applications ranging from simple to more complicated uses such as military, healthcare, sportswear, etc. Smart or intelligent textiles can also be called as the next- generation textiles.

Smart Textiles are the textile materials that have the ability to sense and hence react to external stimulus with the help of electronic sensors incorporated. Along with its application indifferent fields like sports, military, fashion/lifestyle etc., it has applications in health care for continuous monitoring of patients. A smart textile are materials and structures that sense and react to environmental conditions or stimuli, such as those from mechanical, thermal, chemical, electrical, magnetic or other sources. They are systems composed of different apparatuses and materials such as sensors, actuators and electronic devices together.

Technical textiles are defined as textile materials and products used primarily for their technical performance and functional properties rather than their aesthetic or decorative characteristics. This is one of the fastest-growing sectors of the Textile Industry, which is manufacturing high-tech, high-performance fabric designed not just to look attractive, but to present a significant added value in terms of functionality. The textile coating process is widely used in the manufacturing of technical textiles. Technical textiles are functional fabrics that have applications across various industries including automobiles, civil engineering and construction agriculture, health care, industrial safety, personal protection etc. The technological evaluation which transversally integrates human science, materials and information technology, does allow to four screen four seeing positive perspective in the approach toward the development of new products and applications.

II. Materials for technical textiles

egulat/Generic fibers….Natural fibers: Cotton, silk, wool, jute, hamp, ramie, flax

Regenerated fibers: Viscose, Lyocell. Synthetic fibers: Nylon, PET, PP, Acrylic.

Specialty variants of regular/generic fibers….Flame retardant, Super absorbent, Anti micro bacterial Ultra fine fibers etc.

High tech/high performance fibers….High chemical- and combustion-resistant organic fibres: Nomex, Kevlar.

High performance inorganic fibres….Glass, Asbestos, Carbonic

Classification of technical textile:

1. Agro Tech (Agro-textiles):

Textiles used in Agriculture are termed agro textiles. The agro tech products include shade nets, crop covers, mulch mats, anti-hail nets, bird's protection nets, and fishing nets agriculture, horticulture, forestry and Aquaculture textiles Polypropylene, polyester, polyethylene etc.

Given the increasing awareness of the environment and the specific knowledge of the various interdisciplinary technologies, special attention has been paid to unconventional technical applications, such as the use of textile structures in the agriculture and horticulture sectors to increase the quality and efficiency of agriculture and food products in terms of ensuring a healthy environment, social-economic equity, and a profitable economy.

2. Build Tech (Construction Textiles):

Textiles have in the past been predominantly confined to the interior decoration; they are now increasingly becoming part of these constructions themselves.

Textiles used in construction – concrete reinforcement, façade foundation systems, interior construction, insulations, proofing materials, air conditioning, noise prevention, visual protection, protection against the sun, building safety, architectural membranes, floor & wall coverings, scaffolding nets, awnings & canopies, HDPE tarpaulins and others.

3. Cloth Tech (Clothing Textiles):

In the textile and apparel industry, clothing components include fibre and textiles which are used as a technical component during Apparel manufacturing. Those clothing components are swing traits, wedding and interlacing and insulations.

4. Geo Tech (geo textile and soil engineering):

These are used in the reinforcement of embankments or construction of bridges, dams roads and pavements, railways and paths as well as embarrassments, cutting, dikes, rail- track bed stabilization, landfills and waste management and sub-sea coastal engineering projects.

The fabrics in geo textiles are permeable fabrics and are used with soils having the ability to separate, filter, protect or drain. The fabric used in it must have good strength, durability, low moisture absorption and thickness. Mostly nonwoven and woven fabrics are used in it.

Synthetic fibers like glass, polypropylene and acrylic fibers are used to prevent cracking of concrete, plastic and other building materials. Polypropylene and polyester are used in geo textiles and dry/liquid filtration due to their compatibility.

5. Home tech (Domestic Textiles):

Textiles used in a domestic environment – interior decoration and furniture, carpeting, protection against the sun, cushion materials, fireproofing, floor and wall coverings, textile reinforced structures/fittings, furniture fabrics, fiberfill, stuffed toys, blinds, mattress and pillow components, carpet backing cloth, mosquito nets, vacuum cleaner filters, and others.

6. Indu Tech (Industrial Textiles):

These technical textiles products are used for industrial purposes. The industrial purposes include industrial processes, incorporation of textiles into industrial products, reinforcements for printed circuit boards, seals and the gaskets and other industrial equipment. The indu tech products include conveyor belts, cigarette filter rods, drive belts, bloating cloth, AGM glass battery separators, decatising cloth, abrasives, ropes and cordages, composites, computer printer ribbon, printed circuit boards, paper making fabrics, filtration products, and industrial brushes.

7. Medi-Tech (Medical textiles):

These are commonly used in bandages and sutures (stitching the wounds), surgical dressings, contact lenses, artificial implants, baby diapers, incontinence diapers, sanitary napkins, surgical sutures, surgical disposables, and others. Medical textiles also cover surgical gowns and drapes. . Polyester, Cotton, polypropylene, silk and their use is best on several typical basic textile properties like softness and lightness, flexibility, absorption,

filtering etc. Traditional applications include wounds care products, diapers braces, prostheses and outhouses', wipes, breathing mask, bedding, and covers, ropes, and belts etc.

8. Mobi Tech (Textiles used in transport):

Technical textiles used in automobiles, aircraft, railways, and ship building, such as nylon wire cord fabrics, seat cover fabric/upholstery, seat belts, cabin filters, tufted carpet, helmets, insulation felts, automotive interior carpets, sun visors / sunblind's, headliners, airbags, seat belt webbing, car body covers, airline disposables, aircraft webbings and others. The autonsotive sector has been improving its existing market share and creating innovative products through new developments, consequently increasing the demand for technical textiles.

9. Oeko Tech (Environmentally friendly textiles):

These types of technical textiles are used for the protection of the environment and ecology. Do this type of technical textile overlaps with several other areas such as industrial textiles, geo textiles and agricultural textiles it's not a well defined segment yet.

10. Patch tech (Packaging textiles):

There are some key uses of technical textiles as packaging and containment such as manufacturing of sacks and bags, traditionally from cotton, flex, and jute but increasingly from polypropylene and glass fibers. In the modern packaging market especially in the food industry, lighter weight nonwovens and knitted structures for a variety of working and protection applications. On the other hand tea and coffee bags used wet-laid nonwovens.

Besides these vegetables meals and fruits are now frequently packed with a nonwoven insert to absorb liquids, whereas fruits and vegetable products are supplied in knit or knitted net.

11. Pro tech (Protective textiles):

Protection against heat and radiation for firefighter clothing, against molten metal's for welders, for bulletproof jackets etc, all these things are obtained by usage of technical textiles with high-performance fibers high altitude clothing, ballistic protective clothing, fire retardant apparel, high visibility clothing, industrial gloves, and others.

12. Sports Tech (Sports textiles):

The various products used in sports application are included in it such as playing turf of hockey, etc. Ground, net used in various games like football, tennis, table tennis, basketball, hockey etc. The sports tech also includes the different types of protective materials used in various games such as gloves, helmets, safety pads etc. Also, the playing equipment such as Tents, swimwear, footwear components, sports nets, sleeping bags, hot air balloons, parachute fabrics, artificial turf, sports composites, and rackets, balls of various games like football, tennis, cricket, volleyball etc Polyester, nylon, spandex, glass fibers are used for Sport and leisure

Uses of Technical Textile:

Pidilite products are extensively used across many industries in a wide range of technical textile companies in India. These include technical textile uses in segments like Hometech, Packtech, Indutech, Geotech, Sportech,

Medtech and Protech etc. Applications consist of apparel, protective textiles, transportation fabrics, home furnishings, window treatments, soft luggage and a range of other technical textile applications for woven, non- woven and knit fabrics. Our portfolio of water-based, multi-functional coatings improves a broad range of functional and aesthetic properties, including flame retardance, abrasion and wash durability, water repellence, chemical resistance, thermal regulation and stretch resistance.

A Smart Textiles:

A smart textile are materials and structures that sense and react to environmental conditions or stimuli, such as those from mechanical, thermal, chemical, electrical, magnetic or other sources. They are systems composed of different apparatuses and materials such as sensors, actuators and electronic devices together. Textile science today stands on a novel unexplored and a fantasy-filled horizon.

Classification of smart textiles:

Passive smart textiles:- The first generations of smart textiles, they are only able to sales the environment user, based on sensors.

Active smart textiles:- The second generation have both actuators and sensors. Textiles which adopt their functionality to changing environment automatically are active smart textiles. Active smart textiles are shape memory, chameleonic, water resistant and vapor permeable, hate storage thermo regulated vapor absorbing and heat evolving fabric and electrically heated suits.

Ultra smart textiles:- Very smart textiles are the third generation of smart textiles, which can sense, react and adopt themselves to environmental conditions or stimuli.

Functions of smart textiles:-

Five functions can be distinguished in the intelligent suit namely sensor, data processing actuators, storage and communication. They all have a clear roll, although not all intelligent suits will contain all functions. The functions may be quite apparent or maybe an intrinsic property of the material or structure. They all require appropriate materials and structures and they must be compatible with the function of clothing. Comfortable, durable, resistant to regular process and so on.

Sensors:-

The basis of the sensor is that it transforms a single signal into another signal that can be read and understood by predefined readers which can be a real device or a person. As for real devices ultimately most signals are being transformed into electric ones. Textile materials cover a large surface area of the body. Consequently, they are an excellent measuring tool.

Data processing:-

Data processing is one of the components that are required only when active processing is necessary. The main bottle neck at present is the interpretation of the data. Textile sensors could provide a huge number of data, but what do they mean? Problems are large variations of signals between patients complex analysis of stationery and time dependency signals lack of objective standard values lack of understanding of complex inter relationship between parameters. Apart from this, the textile material in itself does not have any computing power at all.

Actuators:-

Actuators respond to an impulse resulting from the sensor function, possibly after data processing. Actuators make things move, they release substances, make noise, and many others. Shape memory materials are the best-known examples in this area. Shape memory alloys exist in the form of threads. Because of its ability to react to a temperature charge, a shape memory material can be used as an actuator and link up perfectly with the requirements imposed on smart textiles.

Storage:-

The smart suit offer needs some storage capacity. Storage of data or energy is most common, sensing, data processing, actuation, communication; they usually need energy, mostly electrical power. Efficient energy management will consist of an appropriate combination of energy supply and energy storage capacity.

Communication:-

For intelligence textiles, communication has many faces; communication may be required within one element of the suit, between the individual elements within the suit, from the wearer to the suit to pass instructions, from the suit to the wearer or his environment to pass information.

Application of smart textiles... Health...

The development of wearable monitoring systems is already having an effect on healthcare in the form of "Telemedicine". Representative examples are Wireless-enabled garment with embedded textile sensors for simultaneous acquisition and continuous Monitoring of ECG, respiration, EMG, and physical activity. The "smart Cloth"embeds a strain fabric sensor based on piezoresistive yarn and fabric electrodes realized with metal based yarns. Sensitize vest including fully woven textile sensor for ECG and respiratory frequency detection and a portable electronic board for motion assessment, signal pre- processing, and Bluetooth for connection of data transmission. The wearable sen garment that measures human sitized garment that measures human heart rhythm and respiration using a three-lead ECG shirt. The conductive fibre grid and sensors are fully integrated (knitted) in the garment (smart shirt).

Life belt:-

Life belt plays a significant role in medical sector. It's a valuable decision support tool.

Basically life belt is a trans-abdominal wearable device. To avoid the frequent visit of additional patients the remote health monitoring provided by this. It is also time consuming to take individual care of every patients. So it becomes easier when hospitals use Life Belt which improves significantly patient's living and health conditions.

Phase change materials:-

Nowadays, face change materials are highly applied in the field of textiles for different kinds of products such as apparel, underwear, socks, shoes , bedding accessories and sleeping bags. For multifunctional products also are applicable in the specialty items like anti- ballistic vests, automotive, medical or for other industrial applications.

III. CONCLUSIONS

The textile industry is not only experiencing clothing application but also continuing a major outlook towards the non-clothing application of textiles known as Technical textiles.

The distinctiveness and confrontation of technical textiles lie in the need to understand and apply the principles of textile science and technology to give solutions, in the main leading technological problems but also often to engineering problems as well.

The fabrics of the future will be entirely re-conceptualized; researchers all over the world have been quizzed about the products that will be appearing on the market over the coming decades, and their belief is that there will be materials capable of repairing themselves when damaged, fabrics with built-in digital devices, smart textiles with nano materials and much more. With textiles it will be possible offer innovative solutions for global problems, such as pollution, health issues, transports, protection, communication, and so on. Smart textile is so much useful for human being. So we should have proper knowledge in this field. It should have high strength, high chemical and combustion-resistant organic fiber, high modulus organic fiber, It can be Ultra-fine fiber and novelty fiber, and high performance inorganic fiber

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IJSRST Team wishes all the best for bright future

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Contents

ECO-FRIENDLY NATURAL DYES AND THEIR APPLICATION ON TEXTILES

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ABSTRACT

Natural Dyes are derived from natural materials such as plant leaves, roots, bark, insect secretions, and minerals. In the earlier days, dyes were derived only from natural sources. Natural dyes are cheap, easily obtainable. These dyes are easily decomposed in nature and they do not pollute the environment while destroying them after end use. Clothing with natural dyes provide excellent feel of nature that cannot be obtained by synthetic dyes. Due to their excellent nontoxic and non-allergenic characteristics, people of all ages can use the clothing dyed with natural dyes. These dyes are harmless to the baby skin. They have wonderful capabilities to protect humans from ultra-violate radiation and extreme sun burning. Shades created by natural dyes comfortable and soft feel. They produce exceptional color ideas and these shades are normally harmonious. The world is in the age of environmental and ecological consciousness. Environment pollution is gaining importance as being one of the most challenging problems facing the human race at present.

Keywords: *Sustainability, Eco-friendly, Natural dyes, mordents.*

Introduction

The textile industry has a heavy impact on the environment. Every year 1 million tons of different types of chemical dyes are used across the globe. The dying and bleaching of fabrics involve chemicals, energy and huge amount of water. The European and Asian countries including India have banned the manufacture and use of azo dyes. This move on the dominating section of the world has created unstinted demand for natural dyes as researchers are looking forward for eco friendly products and technologies.

The history of natural dyes dates to prehistoric times, India the country whose dying practices have exercised the greatest influence on European Dyers from the 16th century, appears to have had a dye industry long before its transactions were recorded in writings, perhaps extending to the period of the Indus valley civilization 2500 BCE.

Throughout history, people have dyed their textiles using common, locally available materials, but scarce dye stuffs that produced brilliant and permanent colors such as the natural invertebrate dyes.

As interest in natural dyes grew, information from the old literature was collected and traditional dyeing practices in different regions were documented and compiled by various researchers.

First natural dye use was found around 2600 BC. Originally, dyes were made with natural pigments mixed with water and oil used to decorate skin, jewelry. Natural dyes are color substances obtained from natural sources. Natural dyes are used for all types of textile dyeing and printing until the middle of the nineteenth century. The use of natural dyes was reduced due to the advent of synthetic dyes, though they were economical and possess excellent fastness properties. However, the growing consumer awareness of the harmful impact of synthetic dyes, concern for the environment worldwide, and stringent environmental laws lead to the revival of natural dyes. Coloring matter extracted from the roots, stems, leaves, or barriers and flowers of various plants has various expectations.

Until 1856, natural dyes and pigments were used as coloring agents. The majority of natural dyes are vegetable dyes from plant sources and other organic sources such as fungi and lichens. With the improvement of living standards, everybody is very much conscious about environmental protection and health safety. Natural dyes have attracted more attention to the industry due to exhibiting better biodegradability and more compatibility with

the environment. This paper contains classification and types of natural dyes, brief review of natural dyes. Applications of natural dyes on textiles and their advantages and disadvantages .

Review of Literature

SujataSaxena and A.S.M. Raja published book on natural dyes sources, chemistry, application and sustainability (2014)

This book attempts to review the current status of natural dyes and various sustainability issues involved their production and Application and examines their future prospects.

Aseem Kumar Roy Choudhary, (6 March 2018) studied on eco friendly dyes and dyeing. He discussed the environmental benefits and possibility of revival of natural dyes.

Shweta S., Geeta Margaret S. (2016)published paper on scope of natural dyes in present scenario.

In this review paper discussed about the scope of natural dyes, sources and extraction, advantages and disadvantages of natural dyes.

Classification of Natural Dyes

1. Vegetable dyes
2. Animal dyes
3. Mineral dyes

1. Vegetable Dyes-

Historically, plants have been used for the extraction of a majority of natural dyes. Various plant parts including roots, leaves, twigs, stems, heartwood, bark, wood shavings, flowers, fruits, rinds, hulls, husks, like serve as natural dye sources. A renewed interest in natural dyes has increased their commercial availability.

Indigo-

Indigo is the only important natural blue dye. It is extracted from the leaves of the leguminous plant, Indigoferatinctoria. This very important dye popularly known as the "king of natural dyes" has been used from ancient times till now for producing blue color and is today's most popular for denim fabrics. It is suitable for dyeing cotton and wool..

Madder-

Madder is the red color producing natural dyes from the plants of various Rubia species. The dye is obtained from the roots of the plant. It is also popularly known as the "queen of natural dyes". Dye is usually extracted by boiling dried root chips or stem pieces with water. Alum can be used as a primary metallic salt in combination with other mordants to develop a range of red shades. Dyed materials possess good fastness properties. Alum is widely used to get pink and red shades. A mixture of alum and iron produces purple shades.

Morinda-

The root and bark of the tree Morindacitrifolia growing in India and Sri Lanka is used for getting red shades.Maximumcolouring matter can be obtained from the 3 to 4-year-old tree. Mature trees have very little dye. Dye is extracted from the chipped material with water after a preliminary wash to remove free acids. Various shades including purple and chocolate can be produced with the use of mordants.

Safflower-

Safflower is an annual herb known to have originated in Afghanistan. The safflower florets were traditionally used for extracting dye which was valued for its bright cherry-red color. Safflower has been employed to give cherry-red direct dyeing on silk and cotton. The dye is extracted from dried safflower florets by continuously washing it with acidulated water to remove all the water-soluble yellow coloring matter. The washing and light fastness of the dye is poor.

Turmeric-

Turmeric is a well-known natural dye. The dye is extracted from the fresh or dried rhizomes of turmeric. The dye present is chemically curcumin belonging to the Diaroylmethane class. It is a substantive dye capable of directly dyeing silk, wool, and cotton. The shade produced is fast to washing but its fastness to light is poor. Turmeric dyeing can be over dyed with indigo for production of fast greens. The natural mordants such as tannin obtained from myrobolan can be used to improve the fastness

properties.

Pomegranate-

Rinds of pomegranate (Punicagranatum) fruits are rich in tannins and are used for mordanting purposes. A yellow dye is also present which can be used to dye wool, silk, and cotton with good fastness properties. It is also used along with turmeric for improving the light fastness of the dyed materials.

Myrobolan-

Dried myrobolan (Terminaliachebula) fruits have high tannin content and also contain a natural dye that is used for producing bright yellow shades for all textile materials. Myrobolan is also used as a natural mordant to fix different natural dyes on textile materials.

Marigold-

Marigold (Tagetus spp.) is a bright yellow flower-yielding plant. It is commonly used for making garlands and floral decorations. It is available in different colors including yellow, golden yellow, orange. The main coloring component is quercetagetol, a flavonol along with two of its glycosides and lutein. It dyes wool and silk in deep yellow colors with good fastness properties

Flame-

The flame of the forest (Buteamonosperma) tree, locally known as tesu in India, produces bright orange color flowers. The dye extracted from the flowers can be used for dyeing all natural fibers. Bright yellow to brown and orange colors can be produced with suitable mordant.

Kamala-

The dried fruit capsules of kamala (Mallotusphillipensis) yield a red-orange powder. That can be used for dyeing wool and silk to bright orange-yellow and golden-yellow colors. Colors produced on cotton are not so good with moderate fastness properties.

Onion-

The outer skin of onion (Allium cepa) which is generally thrown away as waste can be used to extract yellow color natural dye. The dye is flavonoid in chemical constitution, and produces bright colors on wool and silk. Cotton can be dyed with suitable mordant. The washing and light fastness of the shade produced are moderate.

Barberry-

The barberry plant roots bark and stems are used to extract the dye. The main constituent of the dye is berberine which is an alkaloid. It is a basic dye and can be used to dye silk and wool directly. The dye produces a bright yellow colour with good washing fastness and average light fastness. Cotton can be dyed after mordanting.

Annatto-

Annatto Bixaorellana is a small tree belonging to the family Bixaceae. The tree is known for the yellow orange dye obtained from its seeds. It is extensively used for the dyeing of cotton, wool, and silk. The alkali extraction method is used for extracting dye at boiling conditions. It produces reddish orange shades on cotton, wool, and silk.

Saffron-

It is a spice derived from the flower of Crocus sativus, commonly known as the "saffron crocus". It produces from yellow color. Saffron is an ancient yellow dye belonging to the family Iridaceae. It is used for cooking as well as medicinal purposes. The dye is extracted from the stigmas of flowers by boiling them in water. It imparts a bright yellow color to the materials. It can directly dye wool, silk, and cotton. Alum mordant produces an orange yellow known as saffron yellow.

Animal Dyes-

Insects were the main source of natural dyes of animal origin and most of these provided red colors

Cochineal insect -

Good examples of animal dyes are cochineal, which is a brilliant red dye produced from insects known as coccus cacti. The dye is obtained from the bodies of female insects that live on cactus (Opuntia species). The principal coloring matter is carminic acid. The cochineal dye produces crimson red color on animal

fibers and has good washing and light fastness properties.

Lac insect -

This dye is extracted from the fluid secreted by the lac insect (Lauiferlacca), which lives on the banyan trees. Lac was also well known in ancient times for coloration of animal fibers. Traditionally, it was used for coloration of animal fibers only as it had good affinity for those but it has now also been used to color cellulosic fibers such as cotton.

Kermes-

Kermes consists of dried bodies of a variety of insects which lives on a species of Oak. The dye is obtained from the body of a small insect called coccuslaccae. Kermes is another animal origin crimson red dye derived from the insect Kermes licis. This dye has been known since ancient times to color animal fibers.

Tyrian purple-

This dye is extracted from the sea snails found in the Mediterranean Sea. The amount of dye produced was very limited and therefore very expensive. Hence it was considered a symbol of royalty and was used to color the clothes of the royal family. It is the most highly prized ancient dye stuff, obtained from the juices of certain species of snails found in the waters of the Mediterranean Sea. It is tremendously costly, as 12,000 animals were needed to obtain one gram of dye stuff. This dye produced a very fast deep violet color on fabrics.

Mineral Dyes-

These include various metal salts and metal oxides. Minerals provide such dyes as Persian blue, chrome yellow, and iron buff. Tribes and nations in different parts of the world have found out the art of coloring and staining textiles with mineral compounds.

Iron buff-

Iron springs, containing iron salts in solution are found in many countries with colour sediments left when the water stands exposed to the air. Dipping clothes in these springs and then exposing them to the air dyed them in iron rust color commonly called as "iron buff". Mineral khaki, a mineral coloring matter has been used to dye military uniforms. Today instead of iron scrap, ferrous sulphate is being used. Some mineral pigments found in nature such as cinnabar, red ocher, yellow ocher, raw sienna, malachite, ultramarine blue, azurite, gypsum, talc, charcoal black, and so on, have been used for coloration purposes. Apart from the red ocher that was used by the monks for coloration of their robes, these were mainly used in paintings and murals along with gum as binder

Microbial and Fungal Origin-

Bacteria produce collared substances as secondary metabolites. Bacillus, Brevibacterium, Flavobacterium,Achromobacter, Pseudomonas, Rhodococcus are some of the pigment-producing bacteria Microbes as a dye. Source offer an advantage as these can be easily grown on cheap substrates under controlled conditions.

Extraction Methods-

The extraction of color component from the dye source is an important aspect as it influences the shades and controls the cost of the dye and dying process. The objective of extraction is to extract maximum colour from the source even though the method depends on the chemical composition of the dyes. The following methods of extraction are Aqueous extraction, alkaline extraction, acidic extraction, solvent extraction, ultrasound assisted extraction, enzyme assisted extraction, super critical fluid extraction.

Aqueous extraction is commonly employed in small scale industries which sometimes are assisted with acid or alkali as the natural dyes are pH sensitive.

However, if it is to be used at a later date for dyeing or in dye extract producing units, it has to be converted into either powder form or concentrated solid rich form for long-term storage and ease of transport. The following techniques are generally used for converting natural dye extracts into powder form or concentrates.

• Spray drying

• Drying under vacuum

• Freeze drying.

Extraction of colour from the raw material

The required quantity of natural product is taken (usually 80%) and is soaked in hot water for 24 hours. Next day the same is heated for 1 to 2 hours to extract the maximum quantity of colour from the natural product. The solution is then filtered.

Mordanting-

Textile fibers, especially cellulosics, do not have much affinity for the majority of the natural dyes; hence these are subjected to an additional step known as mordanting. Mordants are the substances that have affinity for both textile fibers and dyes. There are three types of mordants, namely metal mordant, oil modant and tannic acid.

Oak galls are rich in tannin and are used for mordanting. They can also be used to get a brown color. Catechu or cutch obtained from the heartwood of Acacia catechu is used to dye cotton, wool, and silk to brown color directly. It is also rich in tannins and can be used to get black color with iron mordant. Black color can also be obtained from many yellow and red dyes by iron mordanting. Famous logwood black color having very good fastness properties was obtained by using iron mordant and the extract of logwood obtained from the heartwood of the tree to 20 % tannin which is of the gallotannin type. It has an olive-green color.

Methods of Mordanting-

There are three **types** of mordants based on the time of their usage. They are

Pre mordanting- In this method, the fabric is first mordented and then dyed.

Simultaneous modanting- In this method, the mordern is simultaneously added to the dye bath and the fabric is dyed.

Post mordanting method- In this method the fabric is first dyed and then modernted.

Fastness properties of natural dyes-

The inherent instability of the chromophores in the natural dyes has resulted in poor fastness to washing and light. Use of mordants improves the fastness of dyes to certain extent Majority of the natural dyes produce satisfactory fastness to serviceable conditions such as sunlight, washing, rubbing and perspiration. Major problem of fastness is found with weight rubbing and alkaline perspiration. Neutral soap can be used for laundering.

Application of Natural Dyes on Textiles-

Natural dyes can be used for coloring apparels, home textiles, children's garments, functional clothing and medical textiles. However the selection should be based on the specific end use.

Many natural dyes require the use of chemicals called mordernts to bind the dye to the textile fibers; tannin from oak galls, salt, natural alum, vinegar and ammonia. Natural dyes are mostly employed for dyeing of natural fiber textiles to enhance their eco-friendly characteristics. They are usually applied to textiles by dyeing.

Dyeing is normally carried out by these artisans by hand in large vessels. Iron, stainless steel, copper, and aluminum vessels are used. Dyeing in copper vessels is considered to produce bright shades. Aluminum vessels are normally stained with a particular dye, hence should be used if only one type of dye is used. Stainless steel vessels are most preferred for the natural dyeing process. On a larger scale, hank-dyeing machines have been successfully used.

It set with 1: 20 ml ratio and the filter solution of the natural product is then added and the dying is started. The dying may be started at 50° C and slowly the temperature is raised to boiling. Dyeing is then continued for an hour and material is then taken out of the dye bath,

Advantages of Natural Dyes-

Natural dyes are extracted from natural sources and hence they are eco-friendly. Natural dyes are UV resistant and provide protection to the wearer. Natural dyes are biodegradable and disposing them does not cause pollution. Some natural dyes possess mosquito repellent and flame resistant property. These dyes are come

from natural sources, natural dyes are not harmful to the environment, which makes it so appealing for consumers.

Disadvantages of Natural Dyes-

There are many limitations in the usage of natural dyes. Some of which are listed below

Natural dyes are difficult to store. Dye extraction is a time-consuming process. Reproducibility of the same color shade is difficult. Impurities in natural dyes fade away the color produced. Availability of these dyes depends on the seasons. The natural dyeing process is difficult to standardize.

Conclusion

In conclusion, natural dyes offer a host of benefits for human use. Recently a lot of concern and awareness towards maintenance of ecological balance has led to revival of natural colorants. Replacement of synthetic dyes by natural dyes should be made. Reconstruction of ancient and traditional dyeing technology should be made, it is essential that there should be intense work on natural dyes as well as on their dyeing behavior and fastness properties, which will be helpful for their best practical application. The natural dyes should be used by all the manufactures to make them eco-friendly. Thus there is a need for many more active types of research to build knowledge

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Crisis in Indian Handloom Sector

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Abstract:-

The tradition of weaving by hand is a part of the country's inspirational culture. Indian hand-woven fabrics have existed since beyond the reach of memory. In India handloom industry involves large number of artisans from rural and semi-urban areas, most of which are women and people from economically disadvantaged groups. But due to the presence of super markets and malls the small weavers are facing problems like accessing the raw materials, cost of the raw materials and marketing their products. The government plays a large role in the shaping of the weavers

Textile Industry is the second largest employment generator after agriculture. Textile Industry significantly contributes to the Indian economy. By keeping this in view this paper aims to study the problems faced by handloom weavers. They are facing the competition from power loom and mill sectors. To overcome this, government should implement rigid rules and policies.

Key Words: Handlooms weavers, History, Challnges, Problems Government schemes

Introduction

The handloom sector is a symbol of our country's rich and varied cultural heritage. It is important source of livelihood in rural and semi-rural parts of our country. Handloom provided larger employment opportunities and income to the rural people. The operations of this industry are primarily house hold based, wherein various members of the family put in joint efforts for production. These activities are spread across thousands of towns and villages of the country and involve transfer of skills from one generation to the next. It has a long tradition of excellent craftsmanship, representing and preserving the vibrant Indian culture. Indian artists are now distinguished worldwide for their hand spinning, weaving and printing.

Some of the strengths of this industry are availability of cheap and abundant labor, use of local resources, low capital investment, unique craftsmanship in manufacturing of the products and increasing appreciation by international consumers. It is important to note that despite such unique characteristics, the industry comprises a **meager** proportion of Indian exports in global market, thus calling for efforts to promote and channelize the offerings of the industry to tap its hidden potential. The present study is an effort to bring out the cultural importance of this precious handloom, by giving an overview of its historical background, challenges and problems faced by weavers, Government initiatives for the upliftment of handloom industry.

Historical background:-

The history of handloom in India can be back to Mohenjodaro, Harrapa and the Indus valley civilization. India was renowned even in ancient times as an exporter of textiles to most parts of the civilized world. Historical account also reveals it was even before 5000 B.C.

Different parts of the country have notably contributed to its production differently. Through India's handloom productions one can easily see the diversity and richness in its culture, since the style of production and the product design and product features depict vast differences. Scholars like Herodatus, Meghasthenese and Pliny have spoken in the most laudable terms for Indian cloth. Some of the major regions recognized for their handloom production in India are Arunachal Pradesh, Madhya Pradesh, West Bengal, Bihar, Assam, Meghalaya, Nagaland, Odisha, etc. After agriculture, it is considered as the second-largest economic activity of the country which directly and indirectly employees a large number of individuals and families. Weaving in India has been a traditional and hereditary-based occupation where they are still using traditional methods of production and the traditional designs owing to the lack of exposure and knowledge about the technological changes. Handloom also contributes to the economy of the country by engaging in the export of finished products. Indian handloom products see a huge demand in the world market where these products are highly sorted after due to their unique designs.

Challenges faced by the Indian handloom industry:-

The present age of modernization and globalization has posted a number of challenges for the handloom industry in India. The issues of concern to this industry are discussed below

1. Rising input cost:

The prices of yarn, dyes, chemicals and other inputs have increased sharply in the recent period.The weavers are not able to obtain the necessary inputs at responsible prices. The problem is more acute for the individual weavers who need small quantities of yarn and chemicals. This situation is affecting the level of output in the handloom industry.

2. Credit problem:

The poor financial condition and independent functioning of weavers has made it difficult to obtain credit from the institutional sources. Hence they have to depend on the mercy of private money lender, and their exploitation continues. In many cases the weavers have to divert the loan amount towards consumption needs. The lack of financial literacy further aggravates the problem.

3. Marketing problem:

The largely and organized handloom industry suffers from a number of marketing problems due to poor financial and managerial resources. The prices are also high and not within the reach of common people. There is also problem of genuineness of the products available in the handloom emporiums. The problem of stiffness and limited designs also adds to the marketing difficulties.

4. Lack of modernization.

The handloom industry has been using age old technology and looms. These results a low productivity and high cost. Again the continuous and repetitive moments of production process adversely affect the health of wearers in various ways such body pain, pulmonary problems, chronic bronchitis, decrease in hand- grip strength and eye- strain.

5. Migration to the other fields:-

Due to the lower income and instable work the younger generation of weavers has been migrating to other occupations. This has reduced the wearer community.

6. Poor infrastructure:

Since handloom manufacturing is carried on in the houses of spread over a vast geographical area, it lacks the necessary infrastructure which is available in industrial estates. There are no separate shares, water and power supply, technology support and waste management arrangements. The poor infrastructure affects productivity, quality and cost.

8. Lack of reliable data:

Lack of reliable data with respect to the number of crafts people, their socio economic conditions, livelihood conditions, details of families and their productivity, is a major shortcoming that affects the planning and policy formation of the handloom sector.

Problems of Indian handloom workers:-

Most weavers faces increased poverty due to reduction of wages, hunger, health issues and inability to provide for their families, says the People's Vigilance Committee on Human Rights, an Indian non-governmental organization. It is estimated that over 50 percent of weavers' children are malnourished.

* As per the minimum wage rule, a handloom worker should be able to earn a minimum amount per month. Earning an average of Rs. 3400.00 per month is not encouraging for any profession in today's scenario. Minimum earning of a weaver has to match at least the minimum wage of a skilled or semi-skilled worker if not more.

* In rural areas, where around 87 % of the weavers are present, the banking penetration amongst weavers is just 20 %. Around 76% of the weavers do not have access to banking facilities, let alone being able to get credit facilities from banks. Due to this limitation, weaver households depend on other sources of credit, which have higher rates of interest.

* As an age-old tradition, the art of handloom is passed on from generation to the next by the weavers. However, in the current scenario, weavers are hesitant to encourage the next generations to take up weaving.

*The handloom sector has been unable to utilize e-commerce as an effective channel since digital literacy amongst weavers is low. The 'Indian handlooms' website is promoting e-commerce sales via platforms such as Weaves mart, GoCoop, Amazon, Flipkart, etc. Most of the e-commerce channels promoted in the Indian Handlooms website are either generic marketplaces, which deal with a large

variety of products, or websites exclusive to handlooms not confined to products of a specific region.
The biggest threats in the market place are the power loom products and the cheap imports, which are inevitable in the open market policy across the world.
*Branding has a huge impact on the purchase behavior of consumers. Lately, many private brands like 'Fab India' and 'Raymond Khadi' are selling handloom products. Branding has resulted in the prices of the products going up. However, this does not benefit the weaver due to the presence of middlemen.
*Purchase behavior of consumers is changing ,they are now preferring to shop online than offline. Since weavers cannot reach the online consumers directly, many of them do not know the exact demand for their products and also are unable to get good margins.

The government Schemes.

The handloom industry is being promoted to enable purchasing products from the weavers. The industry needs to be flourished to overcome the danger of extinction.
Various government measures to encourage handloom industry are -

1. The weavers are being granted easy loans, to carry on with their workings and easily purchase raw materials.
2. Various government initiatives like once a week, government officials wore handloom clothes to advertise those items.
3. Design Resource Centers (DRCs) have been set up in Weavers Service Centers across India to promote the industry.
4. Various schemes like National Handloom Development Programme (NHDP), Handloom Weavers' Comprehensive Welfare Scheme (HWCWS) etc are being followed.

Apart from the above the government has introduced the various schemes for the weavers, which are mentioned below –

5. Input Related Scheme – Scheme for Supply of Yarn at Mill Gate Price
6. Development Schemes – Integrated Handloom Development Scheme and
7. Diversified Handloom Development Scheme
8. Welfare Schemes – Handlooms Weavers Comprehensive Welfare Scheme
9. Health Insurance Scheme
10. ii) Mahatma Gandhi Bunkar Bima Yojana
11. Marketing Scheme – Marketing and Export Promotion Scheme
12. Revival, Reform and Restructuring Package for Handloom Sector
13. Other Handloom Scheme – Technology Upgradation Fund Scheme

Proposed approach for sustainability of the Handloom sector:

* Use of high-valued raw material to match the input value of material and high cost of production in handloom and produce only value added products.
* Diversification of handloom products, product development to maximize the value addition.
*Adaptation of Fair-trade practices
* Sensitize handloom weaving as a modern professions like fine arts, photography, music etc.
* Motivate youngsters towards handloom sector. To create interest for the young generations in this field the government should take care of the wages which they are getting. As this work involves expertise, skills and creativity the persons who are doing this work should get the wages which are merely equivalent to the other profession.
* To protect the weaver and the weaving tradition government should encourage NGO's to adopt some weavers to provide with continuous work. Already some NGO's are doing this but these are not sufficient for the entire weaving.

Conclusion:-

India is considered to be the world's best handloom hub and this will continue to be so in the future. Handloom sector has high potential to grow further with focused approach while matching with the modern aspects of living hood. Weavers are gifted with craftsmanship, they are God sent, they deserve higher place in the society like any good painter or artist. Hand woven products are vibrant; it is made with the threads potent with tenacity, strength, passion and dignity. Fabrics so produced carry special values and hence should not be deprived of its value for money. With such belief handloom will remain sustainable as ever. To create interest for the young generations in this field the government should take care of the wages which they are getting. As this work involves

expertise, skills and creativity the persons who are doing this work should get the wages which are merely equivalent to the other profession.

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दूरध्वनी (०२५६२) २३३८४८, ९४०४५७७०२०

कार्यालयीन वेळ

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अक्षरजुळणी : सौ. सीमा शिंत्रे, वारजे-माळवाडी, पुणे ५८.

महाराष्ट्र राज्य साहित्य आणि संस्कृती मंडळाने या नियतकालिकेच्या प्रकाशनार्थ अनुदान दिले आहे. या नियतकालिकेतील लेखकांच्या विचारांशी मंडळ व शासन सहमत असेलच असे नाही.

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CREATE AN AWARENESS AMONG STUDENTS BY TRAINING PROGRAM OF WARLI PAINTING

Dr. Vandana B. Wankhede
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Abstract :

Warli paintings are believed to be one of the oldest forms of art in history. It is a form of tribal art which owes its origin to the state of Maharashtra in India. This art is very popular among the tribal community. The Warli art has special characteristics of representing the humble life of the Warli tribe. The trademark of Warli painting is the use of geometric designs such as triangles, circles; squares, dots, and crook are used to depict human figures, animal figures, houses, crops etc.

This Warli art is being used in making furnishing items like bags, cushion covers, bed spreads, wall panels, dresses and saris. The originality of the Warli art must be preserved and promoted. It should be preserved through documentation like slides, short movies, artists, and artisans should work together and exhibition in museums and private art galleries. Indian government and other voluntary organizations are taking efforts to preserve and promote these paintings.

Keywords: Training, Warli motif, Sketching, Tarpa

Introduction :

Every region has its own style and pattern of art, which is known as folk art. In addition to folk art there are also many type of tribal art practiced in rural population. These arts are simple, vibrant and unique to particular region. Tribal people express themselves in vivid styles through painting which they execute on the wall of the houses. This was the only means of transmitting folklore to a popular not acquainted with the written word. Everything seems to be communicating with nature and this forms the chief characteristics of the Warli art. The Warli art has retained a kind of simplicity and natural beauty. The tribal community however tills date it has not given any special recognition outside India.

Warli painting is a tribal art mostly done by Adivasi from North Sahyadri Range in India (Dahanu, Talasari, Jawhar, Palghar, Mokhada, and Vikramgadh). Warli paintings were mainly done by the women folk. The most important aspect of the painting is that it does not depict mythological characters or images of deities, but depict social life.Warli is one of the oldest forms of Indian folk art and has its origin in the Warli region of Maharashtra. This form of tribal art mainly makes use of geometric shapes such as circle, triangle and square to form numerous shapes. Traditionally Warli painting was done on walls. The walls are made of a mixture of branches, clay and cow dung, making a red, pale brownish, yellow background for the wall paintings. Warli use only white color for their paintings. Their white pigment is a mixture of rice paste and water with gum as a binding agent. They use a bamboo stick chewed at the end to make it as paintbrush. Now a day it is done on various mediums. Warli block printing and

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graphic printing is also done on various surfaces. With view of Warli art the objectives of study were as followed

Objectives :

1. To develop the Warli design sketching skills among students.
2. To develop creative ideas among students.
3. To know the historical background of Warli art.
4. To develop painting skills among trainee students.

Methodology....

For this training program 25 students were selected randomly. Pretest was taken to understand their interest with prescribed questionnaire. The questions dealt with demographic details, history of crafts, process of producing craft, color used for background and painting and motifs used. Finally 25 students were selected for training. Syllabus was constructed for one month training program and step by step sketching techniques have been developed among students.

Methodology

⇩

Selection of Trainee

⇩

Pre testing of knowledge about Warli Painting

⇩

Introduction about Warli Community

⇩

Develop sketching technique

⇩

Develop designing technique

⇩

Acquainted about traditional way of painting

⇩

Practice session for perfection and clarity in painting

⇩

Develop motif

⇩

Organize Exhibition

⇩

Assignment on Warli tribe

⇩

Feedback from trainee

⇩

Issued Certificate

Result and discussion :

Selection of Trainees: Selection of trainees was randomly as per their interest. Minimum criteria set for selection trainee should aware about drawing, understand English language and studying at under graduate course. As per set criteria 25 trainees were selected.

Distribution of selected trainee :

S.No.	Class	No.
1	B.Sc. Ist year	3
2	B.Sc.I Ist year	15
3	B.Sc. IIIst year	7

Table : 1 .Assessing the knowledge about Warli painting among student

Table 1 showed the knowledge about Warli painting among student. It was revealed from the table that out of total student 80 percent were unknown about Warli arts and identification of Warli arts. All the participitants were unaware about Warli tribe but unaware about Warli arts whereas 80 percent participants having not idea about the region famous for Warli, 92 to 100 percent participants not known about colure and motifs used while 100 percent 60 percent were unaware about tarfa dance and 60 percent unaware about where traditional warli art done ?

After the assessment of participants regarding Warli art and their willingness the step by step programme framed and implemented for creating awareness and skill development of Warli arts.

Step wise programme frame work and implementation :

- In the first step students were introduced about history of Warli tribe, their culture

and daily routines, their farming, their God, types of worshipping, rituals and dance.

- In second step sketching techniques were developed among students using circle, triangle and line. Creation based in lines and geometrical figures.
- In third step were to give design oriented look for things in nature through their activities on the occasion of festivals, harvesting, and farming. Use of symbols for certain purposes: Sun, Moon frog, Cob web, Swastika, different musical instruments, farming tools etc.
- In fourth step, students were get acquainted about traditional way of painting and for commercialization, how to use different techniques of painting.

  In fifth step was practice session for perfection and clarity in painting, drawing sheets were used for painting.
- In sixth step, cotton fabric was used for painting. Creative ideas were developed among students and they were skillfully done drawing, sketching and painting of Warli motifs on bags, wall hanging, dresses and gift items.
- In seventh step exhibition were arranged in college and display the paintings made by trainee students. Other students also were get inspiration. Some paintings were sold out and some trainees got orders of wall panels and gift items.
- Assignments were given to the trainee for accessing the knowledge about historical background of Warli tribe.

Table 2 : Post Assessing the knowledge about Warli painting among student

Table 2. The information about Post Assessing the knowledge about Warli painting among student is showed in table 2. It was revealed from the table that, 100 percent student was known about Warli arts and identification of Warli arts. Out of all participant 80 percent known Warli tribe and 80- 88 percent participants having idea about the region famous for Warli, 100 percent participants known about colure and motifs used while 100 tarfa dance and where traditional Warli art done. This result is same in line with the conclusion made by Shet and Chimmad (2014) carried out study on Impact of nutrition education in creating awareness about significance of omega 3 fatty acids noted that nutrition education was one of the appropriate, effective and sustainable approach in popularizing omega 3 enriched foods in creating awareness about omega 3 fatty acids and its health benefits.

Table 3: Percent gain in the knowledge about Warli painting among student after planned workshop (%) .

The information about Percent gain in the knowledge about Warli painting among student after planned workshop revealed in table 3. It was observed from the table that the percentage gain knowledge about increased from 80-100 percent to 60-100 percent. Hence differences in values showed that there is gain in knowledge after one month planned step by step programme. This observation was similar with the study on impact of nutrition education and awareness of food safety among women SHG members under taken by Gowri and etal (2020) observed that stastically difference in the knowledge about food safety and hygiene practices among the respondent with different level of education.

Conclusion :

Planned and implemented the step by step training programme is beneficial for creating awareness on Warli art. Students were skillfully done drawing, sketching and painting of Warli motifs on bags, wall hanging, dresses and gift items. These types of training programs are very beneficial for preserving folk art

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Table : 1 .Assessing the knowledge about Warli painting among student (%) n=25

S.N.	Responses given by trainees	Percentage (%)	
		Yes	No
Q.1	Do you know about Warli art?	20%	80%
Q.2	Can you identify Warli art?	20%	80%
Q.3	Warli is the name for what?	100%	00
Q.4	Which region in Maharashtra is famous for Warli	20%	80%
Q.5	Do you know about Colors used in Warli art?	8%	92%
Q.6	Do you know about the motifs used in Warli art?	8%	92%
Q.7	Do you know about Tarpa dance?	00	100%
Q.8	Traditional Warli were done on A) wall B) floor?	A-40%	B-60%
Q.9	Are you interested in learning Warli art?	80%	20%
Q.10	Are you interested to join training program for Warli painting?	80%	20%

Table 2 : Post Assessing the knowledge about Warli painting among student (%) n=25

S.N.	Responses given by trainees	Percentage (%)	
		Yes	No
Q.1	Do you know about Warli art?	100%	00%
Q. 2	Can you identify Warli art?	100%	00%
Q. 3	Warli is the name for what?	80%	20%
Q. 4	Which region in Maharashtra is famous for Warli	88%	12%
Q. 5	Do you know about Colors used in Warli art?	92%	08%
Q.6	Do you know about the motifs used in Warli art?	100%	00%
Q.7	Do you know about Tarpa dance?	100%	00%
Q.8	Traditional Warli were done on. A) wall, B) floor?	A-100%	B-00%

Table 3 : Percent gain in the knowledge about Warli painting among student after planned workshop (%) n=25

S.N.	Responses given by trainees	Percentage (%)		
		Pre (%)	Post (%)	Percent gain in knowledge(%)
Q.1	Do you know about Warli art?	20	100	80
Q. 2	Can you identify Warli art?	20	100	80
Q. 3	Warli is the name for what?	100	80	80
Q. 4.	Which region in Maharashtra is famous for Warli	20	88	68
Q. 5	Do you know about Colors used in Warli art?	8	92	84
Q.6	Do you know about the motifs used in Warli art?	8	100	92
Q.7	Do you know about Tarpa dance?	00	100	100
Q.8.	Traditional Warli were done on?	40	100	60

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WARLI PAINTING: THE IMPRESSION OFTRIBAL ART

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ABSTRACT

The Adivasi ethnic group creates the bulk of Warli paintings, and the Adivasi ethnic group establishes the majority of Warli paintings and art in the western Indian area of the North Sahyadri Range. The Warli tribe is the largest in the Mumbai suburbs. Despite living so close to Mumbai, the Warli tribe members have managed to dodge most of the adverse effects of urbanization. The art form was discovered in the early 1970s.According to Yashodhara Dalmia, "when Warli art was initially uncovered in the early 1970s, it produced a tremendous sensation in many ways" since these pieces stood out among other Indian folk paintings. The introduction of Warli as we know it now was made possible by the late Bhaskar Kulkarni.

In contrast to the mud brick of their homes, he urged the Warli painters to paint their works on paper.Jivya Soma Mashe disrupted the monotony of Warli's custom of married women creating wall art. He experimented using non-ritual painting techniques and produced fresh representations of daily life. Geometric shapes, including triangles, circles, squares, dots, and crooks, represent human beings, animal figures, buildings, crops, and other objects in Warli paintings.

This Warli art is used in furnishing items like bags, cushion covers, bedspreads, wall panels, dresses, and saris.

KEYWORDS: Geometric, Rituals,Motifs, Tarpa, Commercialization

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Original Article

INTRODUCTION

Folk art is a term used to describe art's distinct styles and patterns in each location. Along with folk art, several other forms of tribal art are also practised by rural populations. These arts are straightforward, vivid, and distinct to the area. Tribal people use paint on their homes' walls to express themselves in vibrant forms. This was the only way to teach folklore to a populace who had never read a book. One of the earliest types of folk art in India, Warli originated in the Warli district of Maharashtra. The primary features of Warli art are that everything appears to be in communication with nature. The purity and natural beauty of Warli art have been preserved. However, the indigenous population has yet to receive any specific recognition outsideIndia. The term "Warli" comes from the word "Warla," which means "piece of land" or "field." Warli paintings are narrative artworks, and the topics depict societal customs and regular pursuits, including farming, fishing, hunting, and other forested activities, as well as village life.

Adivasi from India's North Sahyadri Range is a prominent artist of the tribal form known as "Warli painting" (Dahanu, Talasari, Jawhar, Palghar, Mokhada, and Vikramgadh). Women primarily created Warli paintings. The painting's most significant feature is that it depicts daily life rather than legendary figures or depictions of goes geometric forms like the circle, triangle, and square are primarily used in this type of tribal art to create various shapes. Walls were traditionally painted with Warli art. The wall paintings have a red, yellow, and light brownish backdrop since the walls are constructed of a combination of branches, soil, and cow dung.

Warlionly uses white in their artwork. They use gum as a binder material in a rice paste and water combination to create their white pigment. They employ a bamboo stick with the end bitten to serve as a paintbrush.

Now a day, it is done on various mediums. Warli block printing and graphic printing are also done on multiple surfaces.

HISTORICAL BACKGROUND

There is no information available on the precise ancestry of this tribe. It could date to the 10th century AD. According to studies, the tribe continues a ritual that originated between 2,500 and 3,000 BC in the Neolithic era. The tradition is continued through this work. Their mural artwork is comparable to that seen in the Cave Walls of Bhimbetka in Madhya Pradesh between 5000 and 10,000 BC.

MOTIFS

The tribal community's connection to nature and the spirits defines their identity. Their incredibly crude wall paintings use the fundamental shapes of a circle, a triangle, and a square. They created monosyllabic artworks. Their observations of nature led them to make the triangle and circle: the triangle was inspired by mountains and sharp trees, while the process stood in for the sun and moon. Only the square appears to follow a distinct logic and to have been created by humans; it denotes a place of worship or a plot of land. The court, also known as the "check" or "chaukat," is the central motif in each ritual artwork and is primarily of two types: Devchauk and Lagnachauk. We discover Palaghata, the mother deity who represents fertility, within a Devchauk.

The horse, the groom and bride ride, is frequently seen in these artworks. These ceremonial paintings have a central subject encircled by images of hunting, dancing, planting and harvesting, weddings, numerous animals, animals, trees, men, women, and children, dancing peacocks, and many other things.The "Tarpa dance," in which many men alternately play the tarps, a trumpet-like instrument, is one of the most striking aspects of many Warli paintings. Men and women circle the tarp player while intertwining their hands. The dancers keep their backs to the tarpa while following the tarpa player's movements and rotations. The dancers' circular configuration is also said to reflect the life circle. Tribal ideals, including a feeling of homogeneity and intimate social relationships. The following lists the motifs used in Warli paintings.

'Regh' – meaning in a Warli painting straight lines. The use of vertical and horizontal lines is crucial.

'**Pasodi**' The groom and bride are seen wearing a red and yellow bridal gown as a symbol.

'**Sakhali'** - This design for Warli jewellery is focused on the ebb and flow of a line.

'Dhak' -Two sharp triangles make up the Dhak design, which may symbolize a dazzling knowledge of sensuality.

'Bashinga' - Symbol of wedding crown which will be in a triangle shape**.**

'Pophala' - The pophala represents the circle—an auspicious symbol of the mother goddess.

'Pot, with a mango branch, coconut, and leaves" The storage of holy water for the bride and groom's washing marks the beginning of the marriage ceremony, and the pot is viewed as a sacred object.

Lisan' - (ladder) ladder is a metaphor for obtaining success with sacrifice from both the husband and the wife, just as the magnetic poles of the ladder are equally important.

'Fani' - (Comb) – It has a position in Warli art and is utilized for beautifying.

'Ghagali' – Is a musical instrument used during Kansaripuja.

' Tarpa' - A piece of music, Sun and Moon. World food: "Man, Woman, the Priest"

'Wajantri' – Traditions and festivities would not exist without musicians.

'Navara / Navari' – bride and bridegroom draw in Warli painting.

'Nagar' (a plough) – Plough is an essential agricultural instrument adopted in the Warli.'**Vagha deva'** – The Tiger God, protect themselves.

'Bail Gadi' – (Bullock cart) – Prominently required in agricultural work, is also used in the design. '**Kangi**" – A large Round Rice-Bin made of cane.

'Sutheda' - (Spider) Symbol of exploitation.**'Ghar'** - (House) type of house.

'Top' – (Basket) is utilized for marketing and agricultural activities.

'Soop' – (Winnowing fan) Used in agricultural work.**'Dogar'** – Mountain with Grass

'Bail'-OX is a need for a farmer.**Bakari'** – (Goat) 'Undir'- (Mouse**)**

'Kombadi'- (Hen) 'Pakharu'- (Bird) **'Mashi'**- (Fly) **'Mugi'**- (Ant) **'Ohal'**- (River) **'Bav'**- (Well). **Plough** is an essential agricultural instrument that is adopted in the Warli.

'PanchaSiriya' - The Davchawk's internal deity. He is the mother goddess's protector.

RAW MATERIALS AND TOOLS

The mixture of Rice Paste, Gum, Water Mud, bovine manure, and red clay (Geru). They also make use of pure, organic hues. Dark blue represents the Mahakunch flower, whereas orange, yellow, black, charcoal, and red, represent the Palash flower or Kumkum. They utilize handmade paper and cotton fabric for the surface (canvas). They now produce Warli paintings with brushes using water and synthetic colors.

THE WARLI PAINTING TECHNIQUE

Observe the Warli paintings closely; you can always see the stick-like figures in the movement. The figures have performance gestures more than any facial expression. The paintings depict humans and animals engaged in harvest, cultivating the land, hunting, or dancing amidst a festive atmosphere. The stick-like human figures are made up of two inverted triangles and various flora and fauna in geometrical shapes. The art form does not provide formal training to the artists but is passed down from generation to generation. Warli paintings are always done in white color. The pictorial language has a rudimentary technique, with the white pigment derived from a mixture of rice paste, water, and gum for binding. A bamboo stick is a brush to paint their walls made of red ochre.

In Warli paintings, the pictorial space is divided diagonally, horizontally, or vertically. The landscapes are demarcated well within an enclosure, and all the characters have equal visibility within their rooms. One characteristic of

Warli theme is the spiral formations of men and women depicted in a concentric circular design. These symbolize their Tarpa dance, in which unending circles represent life without a beginning or end. You can see these circles depicted in paintings for all occasions – birth, marriage, or death.

MAIN FEATURES OF WARLI ART

- Lines and geometric shapes as the basis for creation. Images of various skylines (Horizons) at once. Instead of sketching reality, they want to expand descriptive realism.
- They are simple to draw and do not adhere to traditional art standards. Symbols like the sun, moon, frog, cobweb, and swastika are used for specific purposes.
- The majority of these designs are painted onto the walls surrounding their entryway as well as the interior of their hut. The primary goal of this drawing is to obtain blessings for their wedding-related and festival-related events, such as Diwali festivities.
- The subjects shown in Warli painting are very symbolic and repetitious.

MODERN TRENDS IN WARLI ART

Rarely do Warli painters draw a straight line; instead, they create a succession of dots and dashes. Today's contemporary painters are starting to use clean lines in their works. The utilization of contemporary objects like bicycles, vehicles, buildings, computers, spacecraft, railways, etc. has also increased dramatically. Warli paintings on paper have gained a great deal of popularity and are currently marketed both domestically and abroad.

Simple geometric shapes are used in Warli art, which is painted in white over a brown or red clay background. To conserve the paintings, it has continuously evolved into various backdrops using contemporary material. The Adivasi have advanced from walls and floors to paper and canvases in order to serve the increasingly marketed decorative art industry.

Aside from wedding rituals The legends Kansari chi puja and Ayichi puja, which pictorialize and tell distinct and particular occurrences, are shown in Warli paintings. Modern Warli painters are boarding their palettes for works produced outside of the conventional setting, particularly for exhibits. New ideas are being proposed by designers or those collaborating with Warli painters who operate outside the conventional setting where Warli art was first developed and was supported by NGO at Dahanu Tehsil.AYUSH Adivasiyuva shakti is a self-volunteer group of professionals who wants to take the initiative to develop and unify their tribal community for future competitions. Their basics aims are to bring together all individuals, groups,

EFFORTS, FOR THE DEVELOPMENT OF WARLI PAINTING

Male community member Jivya Soma and a number of other male painters continue to create vivid depictions of the lives they lead and the environments they encounter in white paint on paper. International exhibitions of Jivya Soma’s artwork have allowed him to command high prices for them—up to Rs. 5 lacs for a single piece. Jivya claims that because of his contribution to the global dissemination of commercial Warli painting, he is regarded as the originator and master of the genre. More Warli boys and girls have learned the technique from him. He participated in a training programme under the direction of a master craftsman for a few local artists, who went on to develop their craft. Many of them contributed to

Jivya's success at the national and international levels. These days, Sadashiv and Balu are regularly requested to travel to Japan for exhibitions.

The only Warli artist in Maharashtra with a strong command of both German and English is Madhukar Wadu. He believes that today's most fundamental instrument for contract development and marketing is language. Madhukar delivers his artwork to the USA, Germany, France, and Australia.

Women from the Warli Tribe, MankiWayada and Suman Kharapade, have been given the responsibility of training 20 women artists for a year at the IDEAS (Institute of Development Educational Activities and Studies). The primary objective was to keep this craft alive among Warli women.

The first person to utilise this Warli artwork on an earthen pot, a saree, and a T-shirt was another female artist, Rakhi Salunke.

The Community Center for Traditional Paintings supported K. Surya Prakash Goud's "Documentation of Warli paintings" project, which discusses the Warli paintings in detail.

DRAWBACKS OF COMMERCIAL PAINTING

Commercial painting has the significant problem of destroying the uniqueness of traditional Warli art. The use of Warli themes for commercialization has started among traders and middlemen from non-tribal populations. Even some of these have mastered the skill of making money.

Warli artists' progress as professional painters has been hampered by their inability to speak, write, and read languages like Hindi, English, and other ones. Because of this vulnerability, intermediaries have exploited them.

She is unable to create more paintings since, being a woman, a large portion of her work is devoted to domestic and agricultural tasks.

Synthetic colours, which are inherently not eco-friendly, are gradually replacing natural tones.

CONCLUSIONS

India offers a variety of art forms that honour its culture and history. One of them is the Warli artwork. As the Warli males had more exposure to popular culture over the years, their commercial values grew in importance at the expense of traditional customs. Their artwork is heavily influenced by the local flora and animals, as well as their daily lives and surroundings. Additionally, canvases of their artwork may be seen on household items including wall hangings, lampshades, tablecloths, tea cups, and more. The uniqueness of Warli art has to be protected and encouraged. It has to be conserved through recordings like slides and short films, collaborations between artists and craftspeople, and presentations in public and private art galleries. Thankfully, the Indian government and various non-profit groups are working to protect and publicise these artworks.

Commercialization became crucial for tribal art's survival. The number of talented artists is decreasing and being neglected as a result of globalisation, which is to some extent preventing the tribe from experiencing an undisturbed environment. Additionally, many other working artists as well as galleries and interior designers are using this art to make a living. Somewhere,Warli painters are also urged to paint on canvases and other materials for commission work, such as paper and public walls, in order to support themselves. For a period, paper and canvases took the role of walls, while

artificial materials replaced the organic clays used to make browns and rice paste. One should recognize and concur that an artwork only has holiness and legitimacy when it was created by its own tribe.

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The Study of The Role of Human Values in Higher Education

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ABSTRACT

A new era can be ushered in the socio-economic life of any nation's society only through quality and valuable education. In the rapidly changing global environment, the importance of human value-based education has increased a lot more than before. Inculcation of values in education is necessary for peace, prosperity, and development in the world. India is committed to including humanistic values in the new National Education Policy so that future India can move ahead to fulfill the goals of the concept of a happy, prosperous, and welfare life for mankind and peace, love, and brotherhood in the whole world. We can become flag bearers for the establishment of anyway, value education is very important in the Indian education tradition. Human values are eternal and timeless truths. It is relevant not only in India but in every region of the world. It cannot be denied that we have achieved innumerable material achievements from the present higher education. Still, in the present context, higher education is becoming one-sided and insensitive by neglecting human life values, moral traditions, and ideals. In the absence of values and motivational standards, directionless students are moving towards violent, cruel, and inhuman attitudes. In this research paper, the role of human values in higher education has been studied.

Keywords : Higher Education, Human Values, New National Education Policy, Human Life

Data Collection Method Used for Research:

The research paper has depended on secondary data.

Objective of Research:

1) To study the role of human values in higher education.

2) To study the concept of human values.

I. INTRODUCTION

Human values are an important component of our behavior or moral code of conduct. These human values are ideals or standards that act as guidelines for a society or organization or individual. These human values developed through various institutions are deeply ingrained in our hearts. Family is the first step in the development of human values, by climbing which it seems easy to achieve the goal of humanity. Therefore the question of when, how, how much, and what kind of values the family wants to give becomes important. Up to six years of age is the stage when the behavior of others most influences the child, therefore the values at the

primary level are set at this age. Although later also human values develop, the level of influence gradually decreases. Training, encouragement, condemnation, and punishment are some of the tools by which these human values can be developed. It is also worth noting whether the family is nuclear or joint. It is possible to get the value of being an individual from a nuclear family and to live together from a joint family. The educational level and economic level of the family are also helpful in setting the background of human values. Although the real role of society starts with going to school, before that for six years, society and family are equal partners in value development. In the beginning, the development of values is less, but as the contact with society increases, the development of values also takes place gradually. Media, interactions with social groups, co-educational schools, colleges, etc. influence ideas like moral norms, social mobility, and change in society. It is easy to develop human values like patience, and tolerance through contact with people of different religions, castes, and regions.

It is to be noted that the more social one is, the more society will affect him. Educational institutions contribute to the development of human values at two levels – at the level of primary education and the level of higher education. Basic human values have more influence, while higher education institutions can develop practical matters. The potential for personality change is greater at higher levels. The order of coming in contact with different ideologies also starts with higher educational institutions. The effect of freedom, equality, non-violence, and moral education through various courses also helps in human value development. Thus, it is clear that family, society, and education have a big role in the development of human values, and at the same time it is necessary to include human value education in higher education.

It is not enough to get only material prosperity through education; we should also become good human beings and better citizens through education. For this, it becomes necessary to connect with our traditions, ideals, and life values. Traditional values should be accepted with necessary modifications. Incorporation of new knowledge and science along with tradition can make education effective. Education is an important means of the mental and intellectual development of a person. Through education, a person can be saved from bad rituals and mental slavery. Through this, students can be raised against social distortions, superstitions, unequal conditions, cruelty, and exploitation by creating self-confidence, new consciousness, and enthusiasm.

The Role of Human Values in Higher Education:

Education is the essence of the whole life and the foundation stone of education are values and values. The personality of a person is created and modified by values and values. Human values contribute very important to building the foundation stone of a happy and successful life. Human value-based education means to teach universal human values like moral values, patience, honesty, love, goodwill, kindness, compassion, humanity, etc. to the students. The whole objective of human value education lies in the all-around development of the students. Human value-based education envisages such an education system full of progressive, prosperous, creative, and moral values, which will make India a global leader in the direction of the preservation of values. According to the basic spirit of the vision of the National Education Policy, we have to commit ourselves to create a quality and cultured environment in higher education across the country, for national development and global welfare. Considering the Indian knowledge system as the basis, this scheme emphasizes preparing the future generation of cultured students with education. Human value-based education holistically defines

the various aspects of the education system to continue the glorious Indian tradition based on the culture of the country.

The major reason for the decline in the level of higher education in the present times is that we have developed education on science and technology-based education and higher education which provides economic prosperity and its happy results are in front of the world today. Heads of many software companies in the world have received higher education from India or are of Indian origin. Today there is a need to light the lamp of human values within every student and higher education will shine only with human values, only then the country will become bright. Students choose courses for higher education not according to their interests, but by looking at their ability to make themselves financially capable shortly. Today, higher educational institutions, connecting education with meaning, look at it like an industry from a business point of view and teachers are also motivated to fulfill their needs.

Human values and the culture-based system is the heritage of our higher education system, by including culture-based education in higher and technical education, we will have to determine the objective values of education, we should once again revive our glorious history and create a value-based education system. There is a need to make the National Education Policy meaningful with the new form of education. Value-based education has been given special importance in the National Education Policy. At present, the incidents of indiscipline and violent behavior are continuously increasing in colleges. If we can make our education human value-based and culture based, then we can overcome all such problems. Emphasizing the 'humanistic' aspects of education today, India has made it clear in its new education policy that education does not mean mere communication of knowledge and information obtained from teachers and books. It is also to develop those human values, abilities, and tendencies, which can resolve to contribute to world welfare by mobilizing and motivating the world community to build a peaceful, just, inclusive and sustainable society. Human-valued education has great importance in the Indian knowledge tradition.

Due to considering higher education only as a means of getting power or money, it gradually became employable, but could not become useful in a real sense. For the progress of any society or country, it is necessary that apart from higher education, all other human qualities should be developed in the person, so that they can make the society, and the country more democratic and harmonious. The round development of any student will be possible only by focusing on all the aspects like physical, mental, emotional and spiritual, etc. Human value-based education will not only develop human qualities, but the person will be able to better understand the responsibility towards his citizenship. To develop a way of thinking and living at a democratic level, it is necessary that we can succeed in developing patience, honesty, moral values, etc. through education based on human values.

The intellectuals of society should come forward in creating a positive environment for inculcating human values in the present higher education system. Media and newspapers can also play an effective role in propagating the need to implement human values in education. The University Grants Commission, which is responsible for higher education across the country, has long ago underlined the importance of human value education. In this context, the educationists and the government have the same consensus, but till now the governments have not been able to take a concrete decision regarding the inclusion of human value education

in the curriculum of the children. The present time's politics and politicians are passing through a period of deviation from values while humanizing education requires a commitment to democratic values.

Human values are very important to improve the life of all. One who understands the values in his life can check and control the various choices made in his life. Unfortunately, in the fight for industrialization, competition, and survival, we have been complacent about human values. With the rise of higher education, technology, technology, a higher lifestyle, the standard of living can certainly rise and become materially prosperous, but due to selfishness, we face many challenges in religious, economic, and social corruption, and educational fields. Family values are disintegrating in today's individualistic society, due to which loneliness, depression, disorientation, etc. are increasing among the youth. It is often seen that due to a lack of human values, juveniles are becoming criminals. Due to a lack of human values, the family disorder has led them astray. They become drug addicts or consume alcohol, gamble, and indulge in anti-social activities.

Coordination is an important goal of education. Commercialization of higher education is also not appropriate. Nowadays such private educational institutions are opening, whose only aim is to earn money. They are not at all worried about the future of the students. Due to the lack of standard and quality education in such institutions, students have to wander door to door for employment. The reins of these educational institutions should be in the hands of qualified educationists; only then students can be made useful and better citizens of society by getting employment-oriented education. To inculcate human feelings and sensitivity in the students, it is necessary to connect them with Indian ideals, human values, and values.

If there is education based on ethics, human values automatically come into it. While quality science and technical higher education prepare students for the rapidly changing global environment, education based on human values prepares them to face the real challenges of life. In a competitive economy, apart from enabling a person to take advantage of opportunities and possibilities, it is also necessary to inculcate human values within them. The entire scenario has to change for a development-oriented, peaceful society. Our schools and teachers have an important role in this. As a teacher, it is our responsibility to inculcate human values within every student. Fulfilling desires in inappropriate ways by following unethical practices has become a habit of the young generation. The essence of life is education and culture; it can be realized only by those who are themselves cultured. Today, in higher educational institutions, the aim of students' knowledge acquisition has remained only to earn money. Education or knowledge can have any purpose other than this, it is beyond their imagination. Education brings the all-around development of personality. It incorporates skill, humility, and courtesy in nature along with spiritual development. It includes human qualities like humanity and benevolence.

In the present context, higher education is becoming isolated and insensitive by neglecting human values, traditions, and ideals. Conditions of insensitivity can be seen all over the environment. In the absence of human values and ideals, directionless students are moving towards violent, cruel, and inhuman attitudes. Unaware of the messages of their great men, their traditions, and their ideals, the new generation is becoming unbridled. The dazzle of modernity and the tendency to show off have made them extremely opportunistic and immoral. A person moves towards violence, rape, theft, dacoity, and terror only when he does not get proper guidance,

proper education, and a healthy environment. Immediate profit and indulgent tendencies have made man insensitive and violent.

The aspiration of today's parents is only limited to good grades or marks in the children so that they can get good returns on the investment in the form of higher education. What should be the institutions, what should be the curriculum, everything is motivated by money. Man learns from living examples from his environment. Without practical, cultured, quality education, the only purpose of education goes astray. Education is not limited to formulas and equations, and bookish knowledge; it is related to our spiritual development along with being the art of living a practical life. Morality, politeness, and manners are all very important parts of this education. Today there is a need to develop those eternal values in the character of the students so that they can face any challenge in life. There is an urgent need to learn and teach the underlying concepts of democratic principles, values, ideas, rights, and responsibilities to each generation.

II. Conclusion

Today we are living a modern, but artificial life in the glare of the materialistic era. Unfortunately, we have moved away from human values by enjoying a life full of luxury. Even though we consider ourselves very capable and superior in terms of science technology and technology, the truth is that as science has progressed, our social structure and our behavior have changed. Our ethics have constantly changed and are constantly changing. The lifestyle of the people is changing day by day. Higher education has expanded numerically after independence, but in many ways, this expansion of higher education remained unilateral. Various commissions created for the promotion of higher education talked about human values, but they could not be properly included in higher education. For an education based on human values, we need a change in the overall higher education sector and its environment. It is very important to give importance to value education in the present higher education system so that the coming generations can be cultured.

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E-Learning Challenges in Remote Areas in India: An Empirical Study from Teacher's Perspective

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Abstract

Although the introduction of Covid-19 and the ensuing nationwide lockdown triggered the process, Information and communication technology was destined to change learning pedagogy. COVID -19 led to a transformation in how people worked, lived, and put ideas into practice, much like everybody had been doing during the past few years. India's educational system needs reform as well, particularly in rural areas. The COVID-19 epidemic prompted a lengthy shutdown of every region of the world economy. However, despite this, this was the most severe downturn of the decade and slowed total growth. As with other businesses, the Indian educational system was severely impacted. The number of rural students who attended classes soon decreased, even though urban universities could still offer online courses. Since every child has a right to ongoing education that should not be restricted, providing online learning in rural India was the most significant issue. The purpose of this study is to collect information regarding the difficulties that students in rural areas experience. Samples of 197 respondents were considered to find the result of the study.

Keywords- E-Learning, Rural Areas, Covid -19, Education System, Growth, Challenges, Colleges, Students, Classes.

Introduction:

Changes in the education sector will inevitably occur, given the rapid advancement of technology.

Numerous studies are being conducted to determine the advantages and disadvantages of online learning compared to traditional classroom instruction. There are numerous chances and difficulties for online education in India. In this research, we have highlighted critical characteristics that will enhance online education in India using a thorough literature review. A virus that threatened everyone around the world heralded in the year 2020.

A significant number of people have died as a result of the disease, which is currently circulating.

Both rich and emerging countries searched for a cure even though the condition was at its most severe stages and cases were multiplying exponentially. India launched a lockdown in March to safeguard the people, halting factories and organizations that provide significant sectoral revenues.

The installation of security precautions for sizable meetings, especially those involving kids, such as schools and universities, was another problem. The peak time for all session starts and final examinations was in peril since there were no other possibilities (Prabakaran & Saravanakumar, 2020). The problems were pervasive and grew in an unsettling way. Hunger and unemployment grew in importance as the large assembly dispersed. Instead of illnesses, daily wage and minimum wage employees were passing away from starvation. One solution cannot be adequate to stop the spillover, given the nation's size and the number of recipients. Leakages were growing as people moved back to their hometowns from the metropolis. Rural India was the safest location to live despite having little access to food, transport, or education as the illness moved quickly across urban areas (Radha, 2019). Since rural regions in India still need to catch up to metropolitan areas in many sectors, including the availability of necessities, there is a considerable imbalance between rural

and urban growth in India. The COVID era witnessed the creation of this comprehensive approach, which encompasses all elements required for a country's progress. Indian education tends to do well in terms of the gap between rural and urban regions, as seen by high levels of literacy, low household hills, simple access to technology, etc. Many bright kids' prospects have been wrecked (Saravanakumar & Padmini, 2020). Resuming academic work after a break caused by personal concerns is challenging, not just in Indian societies. How much they can afford to spend for their school while still trying to make ends meet depends on the number of children in the household. This was a reality for many street sellers who left their families in the countryside to work and give money. The difference between urban and rural India is the issue here Saravanakumar et al.,2019). The educational system has also experienced a significant transformation toward online courses and some alternatives that can eliminate the primary obstacles both temporarily and permanently.

Literature Of Review:

In the western world, e-learning has transformed the teaching and learning process from teacher to student-centric. Numerous studies conducted in the west have repeatedly concluded that information and communication technology improves the efficacy and usability of teaching and learning for pupils. Although India joined the internet revolution later than other countries, COVID-19 has made adopting technology necessary in India. As seen in the west, the value and benefits of student-centered learning over teacher-centered learning approaches have been recognized by both the central and state governments. Technology is a fantastic facilitator for promoting this process within our country's teaching and learning community.

Nandal, N. (2020). A new conception of teaching and learning were introduced by the tools and approaches that information and communication technology brought into the field of education.

The learning management system is one of the most important instruments used in educational institutions to support e-learning. Urban and rural communities have a striking digital divide. In order to support and facilitate contemporary education, we provide a concept for delivering e-learning services to remote and rural locations in this study. E-learning centers are made possible through the Internet by a specialized resource center that hosts the learning management system.

This model's overarching objective is to create a technologically advanced, cost-effective learning environment that allows students to learn about new information and communication technologies online.

Marti & Bolliger (2018). E-learning has been declared compulsory for all academic institutions because of the COVID-19 pandemic concern. E-learning is an emerging trend. Its scope has been expanding. Online learning is the best method for everyone. Many people choose to study when it is most convenient, depending on their comfort and availability. Now, the learner has unlimited access to fresh material. Due to the many benefits, it provides for children. The study's findings show how effective online learning is, how interested students are in using these tools, and how well they succeed. In conclusion, our study demonstrated that E-learning has grown in popularity among students worldwide, especially during the COVID-19 pandemic lockdown period.

Jadhav et al. (2020). The school-level education sector in a country like India is divided into three main categories: primary, secondary, and upper secondary education, followed by higher education, which includes graduation and above. The government has partnered with numerous private technologies infrastructure companies in several states to launch an eLearning effort in various rural areas of India. Both the corporate and governmental sectors in Rural India are implementing eLearning projects. In addition to meeting their basic educational demands, the model the author, developed also addresses their desire for future professional advancement. It is necessary to connect rural Indian education and job options rather than keep them apart.

Cohen et al. (2020). Traces the development of e-learning to the day when the information will be widely available, incredibly abundant, and available in various media. Distance learning is acknowledged and accepted as a means of LIS education. It is explored the idea of open and distance learning. The abilities that LIS workers need to have are also identified in the context of the changing social environment. The article also addresses how the Internet has changed the

teacher's job and what abilities and methods educators will require to be successful and productive in online learning environments. The study gives readers a glimpse into the cutting-edge multi-channel distribution methods used by several universities and how well they work for LIS-distant learners.

Kaplan et al. (2016). The development of internet technology has been seen throughout the last few decades and has been instrumental in education. In particular, in distant places where the situation is worse, e-learning can increase India's literacy rate. According to the report, e-learning has become more prevalent in rural areas due to the less expensive and easy access to the Internet, laptops, PCs, and smart phones. Additionally, with practically every industry being digitalized, it is essential for today's young to be familiar with a variety of digital technologies in order to survive.

Rural youth should be encouraged to use e-learning more frequently so that everyone in the nation, even those living in the most remote locations, may access education.

Jena (2020). We can learn or acquire knowledge, skills, and habits through education. E-learning has expanded the possibilities for the education sector. It offers pupils a new method of learning that will help them advance their knowledge and abilities. We'll also talk about the barriers to e-growth learning's and the variables driving them. The effectiveness of e-learning as a method of education has been examined in this essay. This essay's goals are to comprehend the idea of e-learning and examine the effects of the COVID19 epidemic on the educational system. Rural residents struggle in Covid 19 because they lack the necessary equipment to participate in online sessions, and many locations are plagued by poor internet connections and low capacity.

Jindal & Chahal, (2018) The Indian educational system has been working to adapt to the crises with a new approach and digitize the challenges to remove the threat of the pandemic. This particular essay will analyze the state of internet education in rural India at the moment. This study focuses in particular on the significance and impact of COVID-19 in rural India. According to the pupils' responses, lockdown and COVID-19 appear to have had an impact on rural schooling in India. Due to the lack of competent technology handling instruction for students who reside in rural regions, the majority of pupils believe that offline education is the best method of learning. I believe that the Government of India should implement certain significant measures for successful education, particularly in rural area.

Alvi & Gupta (2020) . After carefully examining all of the study's findings, it can be said that even if e-learning came to India a little later than it should have, users there undoubtedly accept it.

Similar educational levels to those found in more densely populated places are frequently difficult to reach in rural locations. Though the usage of e-learning is quite low, new technologies are nevertheless making their way to rural areas. All government actions done to ensure that education is available in every part of the nation and to brighten the overall image must be well planned and carried out. It is not just the responsibility of government institutions; a number of commercial sectors also need to change the way they think, foresee problems, and start working to encourage e-learning.

Cohen & Dull (2020). Today, we're discussing India's whole illiteracy rate. Despite a legislation protecting the right to education being established by the government, there is a severe shortage of trained instructors in the nation. If combined with traditional classroom instruction, the E-learning environment can not only augment but also assist the Indian educational system. The Using information and communication technology, interaction between students and teachers can be established in situations when it is impossible to do so (ICT). One-to-one and one-to-many interactions are not obstacles (Stalin et al., 2016). The ever-expanding telecommunications network and the Next Generation Network (NGN) promise to relieve a lot of the pressure on educators and help India become a self-sufficient and educated nation that competes on a global scale.

Objectives:

1. To identify how e-learning impact education system in rural areas.
2. To ascertain problems faced by students in Indian rural regions.

Methodology:

Nature of study is empirical. 197 teachers of various courses belonging to different levels of education were included in study. Structured questionnaire was used to

collect data. To identify outcome of the Mean and t-test were applied. Sampling method was convenience sampling.

Result of demographic:

Table 1 displays gender of participants, male are 55.84%, and female are 44.16%. Age of participants is, below 30 years are 36.04%, 30 - 45 years are 28.93%, and more than 45 years are 35.03%. Regarding the courses or programme levels they teach, Below Intermediate is 24.87%, Intermediate / Graduation is 14.21%, Post-Graduation is 34.01%, and others is 26.91%. Looking at educational institutions the teachers are serving, Schools is 30.96%, Colleges is 31.98%, and Universities is 37.06%.

Table1. Demographic Details of participants

Variable	No. of participants	%
Gender		
Males	110	55.84%
Females	87	44.16%
Total	197	100 %
Age		
Below 30 years	71	36.04%
30- 45 years	57	28.93%
More than 45 years	69	35.03%
Total	197	100 %
Courses / Programmes you are teaching		
Below Intermediate	49	24.87%
Intermediate / Graduation	28	14.21%
Post-Graduation	67	34.01%
Others	53	26.91%
Total	197	100 %
Educational Institution you belong to		
Schools	61	30.96%
Colleges	63	31.98%
Universities	73	37.06%
Total	197	100 %

Table2. Impact and difficulties of e-learning on Indian rural regions

SN	Survey Statement	Mean Value	T- Value	Sig.
1.	Lack of digital infrastructure and skilled faculty	4.33	18.996	0.000
2.	During pandemic students in rural areas faced problems due to closer of schools	4.12	16.098	0.000
3.	Lack of knowledge among teachers in rural regions about e-learning system	4.21	17.668	0.000
4.	Less availability of computers and internet	4.00	14.307	0.000
5.	High cost of internet in rural regions	4.19	17.305	0.000
6.	Introduction of e-learning had made it essential to have proper and complete infrastructure needed	4.10	15.727	0.000
7.	Government and other agencies must provide all the required facilities to support e-learning	3.15	2.165	0.016
8.	Educated and skilled teachers must be appointed to provide e-learning in rural areas	3.12	1.740	0.042
9.	Blended learning must be adopted in rural regions	4.97	28.214	0.000
10.	e-learning is helpful for students to access study material at any time, and at any place	4.31	19.090	0.000

Table2 shows, mean values of the "Impact and difficulties of e-learning on Indian rural regions" the first statements of T-test is about "Lack of digital infrastructure and skilled faculty" scored the mean value of 4.33, next statement is about issues during pandemic "During pandemic students in rural areas faced problems due to closer of schools" it has scored the mean value of 4.12, third statement is about lack of knowledge "Lack of knowledge among teachers in rural regions about e-learning system" with the mean value of 4.21, next statement tells about unavailability of computers "Less availability of computers and internet" mean value is 4.00. Fifth statement is about high costs "High cost of internet in rural regions" mean score is 4.19, next statement is "Introduction of e-learning had made it essential to have proper and complete infrastructure needed" scored the mean value of 4.10. Seventh statement is "Government and other agencies must provide all the required facilities to support e-learning" mean value is 3.15, next statement is about appointment of skilled teachers "Educated and skilled teachers must be appointed to provide e-learning in rural areas" mean value is 3.12, ninth statement is about blended teaching approach "Blended learning must be adopted in rural regions" with the mean value of 4.97.

Last statement is "e-learning is helpful for students to access study material at any time, and at anyplace" with the mean score of 4.31. T-value of each statement of the survey in the context of Impact and difficulties of e-learning on Indian rural region are significant because t-value of statements are positively significant as the value is less than 0.05.

Conclusion:

Since every advantage of online learning has a disadvantage as well, it is difficult to completely eliminate all of its flaws. However, the future of education is digital. India needs to keep up with developed nations' technological advancements. Indian pupils want improved supplies and ongoing educational updates. This is the ideal time to act and include rural students in the advancement process in order to close the gap between rural and urban areas. Rural India has great potential and aspirations; they just need much more than they currently have. Many things would have changed if the policy framework had been implemented effectively, but the pandemic has created a fresh test and opportunity to create a solid path for kids to travel on and reach success. To overcome the problems and incorporate both rural and urban counterparts in building a great country, the government requires a comprehensive strategy. Every youngster needs equal distribution when they are granted the right to an education. The fundamental spirit of moving forward depends on overall socioeconomic progress. To find outcome of study mean and t test was applied.

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Content

VOLUME-1

8

DOCUMENTATION OF BANJARA COSTUME IN MAHARASHTRA

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Abstract: *Maharashtra is a deeply traditional part of India. It consists of a number of tribal groups and communities where in tribal areas display a variety of ethno linguistic groups, which are culturally distinct from non-tribal groups. Clothing is one of the major media through which the traditional tribal culture and arts are reflected.*

Banjara community has its own place in view of the most colorful, attractive and interesting nature. The role and contribution of the tribes in preserving of culture is well recognized. Hence, the in-depth documentation of costumes was a felt need, where in the analysis of the construction technique and details for tailored garments and step wise explanation of the draped garments with illustration will give clarity. This documentation can help museum personnel for producing and preserving the tribal costumes and to dress designers who can adopt these to contemporary wear.The present investigation was undertaken in order to help to retain the Banjara costumes before they are abandoned.The study is a descriptive one and its aim is to record the details of the Banjara costumes, accessories, hairstyles, ornaments, body decorations and embroidery.

Keywords: *Banjara costumes, Ornaments, Accessories, Embroidery*

BANJARA COSTUME

The dress of Banjara women in designs, colours, schemes and patterns is almost uniform in all parts of India. One can see a different pattern of dresses all over India but the colour combinations are very much similar. The designs and models of Banjara women's dress are unique and identical throughout the country. They could be easily recognized. In olden days the Banjara women were doing their own stitching with their needle and embroidery skills and were making their own dresses with artistic designs, colours, schemes and fastening.They are inborn designer and basically tailor of their own costumes. They did not undergo any training from the experts. The art, they have learnt from their mothers and grandmothers, is a real traditional art of India, which is precious folk art, prestigious culture and great heritage of India. Stitching is such an important part of their life style that they say "jabtak jina tab tak sina" means your life is meant for stitching. Their dresses are predominantly red in colour although other colours are blended in less proportion.

The tradetional dress consists of 3 pieces. The blouse called Kaanchali, the skirt known as Phetia and Odhani or head veil as Pamadi, Tugari.

KAANCHALI

Kaanchali is a colourful and back less bodice with short sleeves. It is often made by joining different pieces. The Kaanchali unlike the ordinary blouses is made up of several pieces of different colour fabrics and each of these parts is richly embroidered. The front part of Kaanchali consists of Chhati, Petti, Khadapa, Khuppa and Bahi. Colour of Bahi and Khadapa has a contrast combination of colour. Khadapa is usually the most heavily decorated portion of the Kaanchali. Between two Khadapa, there is a piece called Chhati. Khuppa is a small piece attached to both the sides of chhati to give a proper fitting. Petti is attached to the Chhati. This piece rests on the navel, and is decorated with beads, tassels and mirrors.

The sleeves are cut on straight piece and attached to the Khadapa. They use short puff or plain sleeves for Kaanchali. Because the arm is covered by ivory bangles and other arm ornaments, the left sleeve has a piece of cloth called Khaviya hanging from the sleeve and joined at the shoulder. This piece is embroidered with many mirror pieces and the lower end is decorated with coins, ghungroos and other metal pieces called 'Thitri', metal beads called 'Paara' are also used.

ODHANI

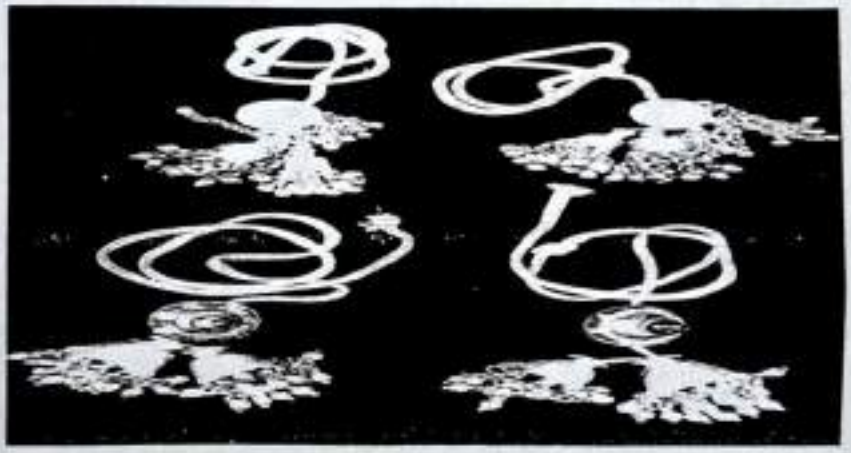
The veil or covering cloth is known as 'Tugri', 'Pamadi','Phadki','Chhatiya', Odhani','Kali'. It is the covering piece, which is tucked at the waist and taken from, below the arm and is thrown over the head on to the right shoulder. This helps to cover the naked back. Traditional Ghaghri is made up of three pieces. The first and last pieces are usually of the same color with middle piece of the contrast color on which embroidery is done. On the right hand corner of the odhni, there is a separate piece of cloth attached, which heavily decorated with mirrors and ghungroos. This piece is called Ghungto, which is very heavy and helps to keep the odhni over the head without fall in. This usually measures one foot and is removed in widowhood. Just below the ghungto is a strip of embroidered cloth called pata. This strip is present on the side of odhni also. Pata is usually decorated with appliqué, beadwork, mirror work, piping and embroidery stitches. A small embroidered pouch or bag is called 'Chhevatia', which is attached to the right corner of the odhni. The most attractive portion of the odhni is the phul, which is embroidered at the center. This phul comes on the center back when odhni is worn over the head.Three meter fabric is required for 'Odhni', and one meter for 'Pata'.

Ornaments:

HairOrnaments:

(*i*) ***Aanti* and Tope**: These are attached to the hair, Aanti or chandola are a type of ornaments, which also hold the veil or chaantiya in position. These are a peculiar hair ornaments worn by the women on the back of their neck.

(*ii*) **Ghugari and Chotala** are the gold or silver pendants fastened to the hair and suspended on the ears, at the temples of the face or either side. The married women have tessels of trinkets called 'Ghugari' attached to the ends of the 'Chotala'. The unmarried girls wear only chotala. A married woman only uses Ghugari. It is made up of brass or gold, silver and looks like a pendant made of a tube with small silver beads hanging. It is attached to the hair on both sides with a pin. Silver beads almost touch the cheeks. This ornament is indicative of the marital status of a woman. Unmarried girls and widows are prohibited from wearing this.



Ghugari & Chorala

(*iii*) **Topali** a hair ornament of Banjara woman. This ornament is common for married, unmarried or a widow. It is fixed in the hair – style that hung on the face of Banjara woman. Topali is made up of silver or white metal.

(*iv*) **Hornor*singh*/ Chunda:** The most distinctive ornament of Banjara married women is however, a small stick about 12 inches long, made of the wood of the 'Khair' or 'Catechu'. This is given to women by her husband at marriage and she wears it afterward placed upright on the top of the head.

In Yavatmal District instead of one the women have two little sticks fix upright in the hair. The rank of the women is said to be shown by the angle at which she wears this horn. The hair being wound round it and the head-cloth draped over it in a graceful fashion. Widows leave if off, but on remarriage adopt it again. In the central and upper provinces of India particularly in 'Khandesh', areas of Maharashtra where the summer heat is unbearable. Banjara women tie one or two small horns (Singh) on their head and the 'Chaantiya' or 'Veil' passing over the horns protect them from the sun.

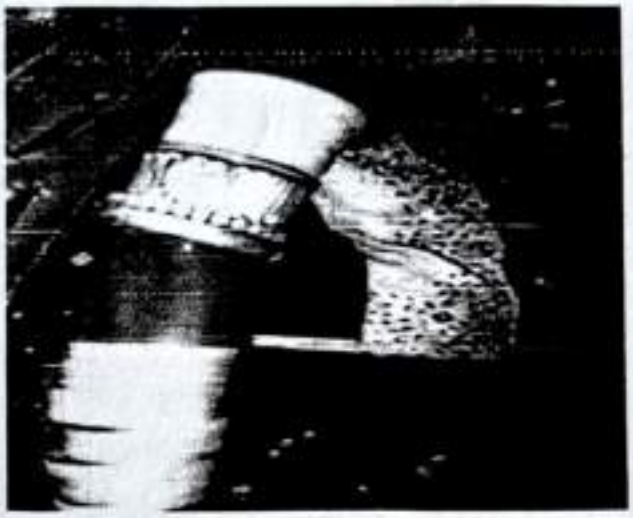
Arm Ornaments

(*i*) **Baliya**: It is very simple arm ornament like patali, made up of Ivory or wood. It is only worn by a married woman.

(*ii*) **Koparbali**: It is an arm ornament used along with 'kalada'. Koparbali is a wavy shape round ornament used under the Baliya and over the 'kalada' by married woman. Even Bachelors and widows too can use it. It is made up of silver or white metal.

(*iii*) **Kalda**: It is a round shape arm ornament.

(*iv*) **Kusotia**: It is a small cloth belt bedecked with glass beads on the upper side and cords of cowries and glass beads hanging from the side. This belt is tied on both shoulders of married women only.



(*v*) **Chodus**: These are horn bangles, covering the whole hand of a woman. Married women wear these bangles up to the shoulder, whereas unmarried women wear up to the elbow only.

ARM ORNAMENTS

Wrist Ornaments

(*i*) **Moterabali**: These are horn and brass bracelets worn on the wrist.

(*ii*) **Chudi**: It is made up of Ivory, wood or even of glass, common for all stages of life. When they are worn in the wrist known as chudi and worn in the arm known as Baitya, only thing never of a glass.

(*iii*) **Gazera**: It is a piece of embroidery silk cloth tied to the right wrist.

Finger ornaments

There are two different kinds of finger rings, which are:

(*i*) **Witee**: It is a finger ring, made up of Kaladar (silver). Kaladar is placed over a finger ring and used as a finger ring, made up of silver. It is put on the first finger of the left hand.

(*ii*) **Phula**: This is made of four old coins arranged in floral shape and put on the middle finger of the left hand. They also wear phula and a brass ring with a coin on it.

Anklets

(*i*) **Khas**: They wear a bell metal anklet, round in shape with different designs drawn on the surface. Married as well as unmarried women wear them.

(*ii*) **Wankdo**: These are anklets larger in diameter and made of Bell metal, they are of a peculiar type with triangular projections painting. Only married women can wear them.

BODY DECORATION

Tattooing

"Tattooing is very popular and common particularly with Banjara women. Men usually get their names tattooed and the figure of scorpion is commonly seen in their forearms. They believe that if they have the figure of scorpion tattooed in their body, scorpion will never bite them and if by chance it bites them, it will not be fatal. Women have tattoo marks on their hands, forearms, on legs and on their backs. Different kinds of designs are drawn, some are very complicated and some were very simple. They are drawn only for the purpose of decoration.

Tattooing motif

Accessories with Embroidery

(*i*) **Mirrorwork:** - mirror work is also called shisha work (Glass), in market, mirrors come in several sizes shapes like round, square, large and small."

(*ii*) **Paisa-work:** - the hooks are joined to the coin attached for which the paisa work is done.

(*iii*) **Ghungaru work:** - It is the traditional method; it is mostly used in ornaments and clothes.

Banjara women are naturally talented in embroidery and stitching. They are easily recognized by their cc traditional costume, which has cultural meaning. Mirrors, Beads, Coins and colorful threads are skillfully st into their clothing. Most familiar to outsiders is the fine Kashida work of the Banjrara of khandesh area of n Maharashtra State.

Accessories made by Banjaras

(*i*) **Kothlo**: it is a pouch made by two rectangular cloths. It is joined together and embroidered on it. It Kothalo. At the time of 'ladeni', it was used to keep flour, grains and other cooking materials. Th Kothlo varies according to the use.

Khaviya, Mandav

These are the pairs of flaps on the chest and shoulder areas of the bodies, are another sign of a married women. An unmarried woman never wears these and they must be removed when the women is widowed, It requires 20 Paise coin, Nali, Paara, Glass, mandra cotton fabrics, white and color thread.

Embroidery

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