Designing and Development of Fashionable Girls top from Power loom Scrap Fabrics

By

GAYATHRI. G

(20PTF007)

A Thesis submitted to the

Avinashilingam Institute for Home Science and Higher

Education for Women Coimbatore -641043

In Partial Fulfilment of the Requirement for The

DEGREE OF MASTER OF SCIENCE IN TEXTILES AND FASHION APPAREL

MAY 2022

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Certified as Bonafied Research Work

30/5/22

Signature of the Head of the Department

Rakna

Signature of the Supervisor

DECLARATION

I declare that the dissertation entitled **"Designing and Development of Fashionable Girls top From Power Loom Scrap Fabrics"** submitted by me for the degree of Master of science (M.Sc.,) is the record of work carried out by me during the period from 2021 to 2022 under the guidance of **Dr. (Mrs) U. RATNA**, M.Sc., M.Phil., Ph.D., Assistant Professor (SG), Department of Textiles and Clothing, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore-642 043 and has not formed the basis for the award of any Degree, Diploma, Associate ship, Fellowship, Titles in this University or any other similar institution of higher learning.

G. Gayathri

Signature of the Candidate

CERTIFICATE FROM THE SUPERVISOR

I certify that dissertation entitled **"Designing and Development of Fashionable Girls top From Power Loom Scrap Fabrics"** submitted for the degree of Master of science (M.Sc.,) Textiles and Fashion Apparel by **GAYATHRI .G** is the record of project work carried out by her during the academic year 2021 to 2022 under my guidance and supervision and this work has not formed the basis for the award of any Degree, Diploma, Associate ship, Fellowship, Titles in this University or any other similar institution of higher learning.

Ratna

Signature of the Supervisor with Designation

20/5/22

Signature of the HOD

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1. INTRODUCTION

India's textile industry contributes about 14 per cent to industrial production; 4 per cent to the country's gross domestic product 17 per cent to its export earnings; and is a source of direct employment for over 35 million people, which makes it the second largest provider of employment after agriculture. The textile industry is one of the leading industries and this industry can surely accelerate the growth of the economy of a nation. A lot of labour work is required in the textile industries and that's why this industry creates a lot of employment; some are called functional; because they assist humans in every way, ensure their comfort and protection. They are divided regarding the environment in which humans live more, and perform their working activities .Textiles have several uses; the most common being for clothing. In the household, textiles are used in carpeting, furnishing, window shades, towels, table covers, bed sheets, handkerchiefs, cleaning devices. Although the growth of power loom industry was slow initially; it has started gearing up now .The number of shuttle-less looms has been augmented to almost 50,000 and from this about 35,000 looms are working in the decentralized Punjab and Ludhiana sector (Dhanabhakyam, 2007)

Fashion is about meeting today‘s needs while ensuring that the way we go about meeting those needs meet future needs sustainable fashion is also about benefitting the people involved throughout the fashion supply chain from farmers to consumers to everyone working in end-of-life facilities such as recycling factories. Fashion has such a significant impact on communities around the world. It also has a huge climate change footprint and if were going to tackle the existential threat of climate change, the fashion industry needs to urgently address its unsustainable practices. The fashion industry is one of the largest polluting in the world; however, some brands have recently announced that they are aiming to become 100 % _circular‘ by 2030. All fashion creates greenhouse gas emissions during manufacture and shipping. Less than 1% of clothing is recycled into new clothing (Lamoure, 2014).

The Garment Industry in India is a one trillion industry. Almost 33 % of its knitwear production and about 20% of its woven-garment production, both by volume, enters export markets. Overall, about 25 % of the volume of its garment production goes into export markets, leaving 75 % for domestic consumption. The industry covers over one million units and employs about 6 million workers, both directly and indirectly in almost equal proportion. The indirect portion helps to sustain the direct production sector in the shape of items

associated with organized sector of the garment industry is roughly 20% of the total industry, concentrating chiefly on exports. These are usually limited Companies, while the rest are proprietary or partnership Companies Geographically; men's garments are largely produced in western and southern India while production of ladies garments predominates in North India. Eastern section of India specializes where in fact, these took their birth. (Birtwistle & Moore, 2007)

The fashion apparel industry has significantly evolved, particularly over the last 20 years. The changing dynamics of the fashion industry have forced retailers to desire low cost and flexibility in design, quality, and speed to market, key strategies to maintain a profitable position in the increasingly demanding market Weaving, using power looms, was traditionally done by composite mills that combined it with spinning and processing operation Most of the woven cloth comes from the power looms unit, suffers from out dated technology, and incurs high co-ordination costs (Bhardwaj & Fairhurst, 2010)

Power loom Clothing also known as clothes, apparel, and attire are items worn on the body. Typically, clothing is made of fabrics or textiles, but over time it has included garments made from animal skin and other thin sheets of materials and natural products found in the environment put together, the industry now produces wide range of fabrics ranging from grey, printed fabric, dyed fabric, cotton fabric. Various mix of cotton, synthetic, and other fibers. The country exports Rs. 44,000 million worth of goods to countries like U.S.A., France, Germany, Bangladesh, Hong Kong, Italy etc. Although the growth of power loom industry was slow initially; it has started gearing up now .The number of shuttle-less looms has been augmented to almost 50,000 and from this about 35,000 looms are working in the decentralized Punjab and Ludhiana sector. (Swati, 2020).

Textile recycling is the process of recovering fiber, yarn, or fabric and reprocessing the textile material into useful products. Textile waste products are gathered from different sources and are then sorted and processed depending on their condition, composition, and resale value textile recycling has become a key focus of worldwide sustainability efforts. The necessary steps in the textile recycling process involve the donation, collection, sorting and processing of textiles, and then subsequent transportation to end users of used garments, rags or other recovered materials. Globalization has led to a "fast fashion" trend where clothes are considered by many consumers to be disposable due to their increasingly lower prices. This has allowed the textile industry to produce vast amounts of products that deplete natural resources.

Textile recycling techniques have been developed to cope with this increase of textile waste and new solution. Most materials used in textile recycling can be split into two categories: pre-consumer and post-consumer waste. Pre-consumer or post-industrial waste consists of textile waste produced at the industrial stage of the production of textile material. The importance of recycling textiles is increasingly being recognized. An estimated 100 billion garments are produced annually, worldwide (Juanga, 2020)

A basic step for garment recyclers is to raise public awareness with information about the importance and benefits of donating used items like clothing and shoes. As such, recycling companies often provide educational materials at their websites regarding garment recycling and its importance. They may also explain what items they accept for recycling. The visual perception and psychological comfort of the garment. The necessary steps in the textile recycling process involve the donation, collection, sorting and processing of textiles, and then subsequent transportation to end users of used garments, rags or other recovered materials (Amutha & Priyanka, 2017)

Post consumer waste are produced by the textile, garment, cotton, and fiber industries and are repurposed by the furniture, home building, automotive, and other industries. Post-consumer or waste consists of discarded garments or household articles made from manufactured textiles. These unwanted articles are typically worn out or damaged. Some post-consumer waste is directed towards second-hand retailers to be sold again. Some of this waste is collected in municipal collection bins, but the majority of this waste is found in landfills (Hardie & Hawley, 2006)

Every good designer needs to understand the basic elements and principles of design. In order to design clothes that are visually intriguing and stand out, fashion designers have been trained to consider four basic elements Garment design is an integration of all the design elements, including color, texture, lines, pattern silhouette, shape, proportion, balance, emphasis or focal point, rhythm and harmony. Each of these contributes towards the visual perception and psychological comfort of the garment, they have clothing banks, shops, and provide recycling education, and even offer free collection at home.(Gupta ,2011)

Fashion is such area that is very important in spreading creativity. It starts with the introduction of new styles; therefore, it is a very popular area for studies focused on innovation teenagers. Teenagers are very lenient in spending because of their improved

economic condition. In addition higher availability of brands has created brand awareness and preference among them at very early age. Therefore, it is important to know how teens associated with brands. Teenagers witnesses the important change in position and behavior. Young people want to communicate their maturity and their ‒adultness‖ to their friends by their buying patterns. Materialistic things are used to establish their identity and gain the reputation needed, especially in this period of ‒identity crisis‖ (Kelly, 2015)

For younger consumers in transition roles, the symbolic properties of assets are dependent on helping them integrate into the desired role. This leads to symbolic buying behavior among teenage. Moreover, teens watch various reality shows to keep up with the dressing style of their idols Nonetheless; fashion is an incessant and endless process. According to research, the choice of dressing for teenagers varies with the majority dressing to deflect or ward off humiliation and mocking from their friends. Most of them presume that if they dress in an inappropriate manner, their peers would not want to interact or socialize with them (Hwang 2012)

The conception and perception of fashion are not only new but day-to-day trends. But, this vogue style has both sanguine and disparaging impressions on teenagers. Teenage love to wear colorful garment like multiple color dress and with difference pattern for many teenage girls, fashion is extremely important. And developing a sense of style is a great way to experiment with self-expression, which is key for a teen girl progressing through adolescence. This like just makes sense that color combinations — two, three, or more can have even greater impact on the way a message is perceived, based on the hues a designer or artist chooses to combine (Klepp, 2005).

The investigator selected to undertake study on to ―Designing and Development of Fashionable Girls top From Power Loom Scrap Fabrics‖ as only few studies have been conducted on usage of scrap fabrics with the following objectives:

- To select fabric from power loom scrap fabric
- To design teenage girl‘s tops from selected scrap fabric
- To construct Teenage tops from the scrap fabric
- To evaluate the constructed girls tops.

2. REVIEW OF LITERATURE

Textile Recycle

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2.5.1. Types

Garment Design

TEXTILIE RECYCLE:

Introduction

Textile recycling is the process by which old clothing and other textiles are recovered for reuse or material recovery. It is the basis for the textile recycling industry. In order to create new garments, old fabrics are reclaimed and repurposed. Textiles cover products that are manufactured using materials and methods that do not pose any harm to people and nature from textile fiber production to the makeup of the finished article and that can be disposed of without harming human health and nature.

The necessary steps in the textile recycling process involve the donation, collection, sorting and processing of textiles, and then subsequent transportation to end users of used garments, rags or other recovered materials. The basis for the growing textile recycling industry is of course, the textile industry itself. The textile industry has evolved into a nearly $1 trillion industry globally, comprising clothing as well as furniture and mattress material, linens, draperies, cleaning materials, leisure equipment, and many other items (Sivakumar, 2020).

The importance of recycling textiles is increasingly being recognized according to U.S. EPA, around 17 million tons of textile municipal solid waste (MSW) was generated in 2018, about 5.8% of total MSW generation. The. An estimated 100 billion garments are produced annually, worldwide .Recycling rate for textiles derived from clothing and footwear was 13.0%, while the recovery for sheets and pillowcases was 15.8% for the same year. As such textile recycling is a significant challenge to be addressed as we strive to move closer to a zero landfill society once in landfills, natural fibers can take a few weeks to a few years to decompose. They may release methane and CO2 gas into the atmosphere. Additionally synthetic textiles are designed not to decompose. In the landfill they may release toxic substances into groundwater and surrounding soil. (Naveed, 2014)

TYPES

There are the three main types of recycling: mechanical, energy and chemical. Every single type is subdivided into minor categories, but understanding them gives us a better idea of how the world processes most of its recyclables. Mechanical recycling is one of the most globally used methods of giving residues new usages is mechanic recycling. Energy recycling is the method used to convert plastics into both thermal and electric energy is called energy

recycling. Chemical recycling are glass recycling, paper recycling, metal recycling, plastic and textile recycling and finally electronic recycling. Another type of recycling is composting which is the –reuse of biodegradable waste‖ like garden mulch, or food. Other types of recycling are grouped by the nature of the recycling procedure. of textile waste and new solutions are still being researched. Recently, certain clothing retailers have embraced this recycling effort and now publicly advertise products that are made of recycled textile material in accordance with shifting consumer expectations two types of base stand post –consumer waste most materials used in textile recycling can be split into two categories: pre-consumer and post-consumer waste (Sivakumar, 2020).

Pre-consumer waste

Pre-consumer or post-industrial waste consists of textile waste produced at the industrial stage of the production of textile material. Typically, these byproducts are produced by the textile, garment, cotton, and fiber industries and are repurposed by the furniture, home building, automotive, and other industries. (Naveed, 2014)

Post-consumer waste

Post-consumer or waste consists of discarded garments or household articles made from manufactured textiles. These unwanted articles are typically worn out or damaged. Some post-consumer waste is directed towards second-hand retailers to be sold again. Some of this waste is collected in municipal collection bins but the majority of this waste is found in landfill. The clothing brand The north face introduced a program called –Clothes the Loop‖ in 2013 that allows consumers to recycle post-consumer waste from any brand at any of their retail locations across the United States. This mirrors similar services by charity organizations such as Goodwill and The Salvation Army in the United States. Across the globe, charitable Organizations and businesses such as thrift stores have created specially marked collection bins that allow the public to dispose of post-consumer waste so that it can be reused and repurposed. (Naveed, 2014)

USES

The second hand makes use of textile waste for the sustainable production of different value-added. (Utebay, et al., 2020)

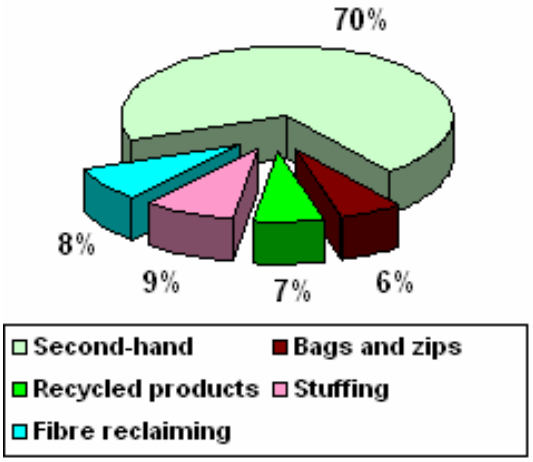


Figure 1

ADVANTAGE

Textile recycling offers the following environmental benefits:

- Decreases landfill space requirements, bearing in mind that synthetic fiber products do not decompose and that natural fibbers may release greenhouse gasses.
- Avoided use of virgin fibbers
- Reduced consumption of energy and water.
- Pollution avoidance Lessened demand for dye.
- It Reduces Greenhouse Gases.
- It Saves Landfill Space.
- It Helps Those in Need.
- It Reduces Costly Consumerism.
- Conserves Vital Energy.
- It's Simple (Utebay, et al., 2020)

LOOM

Introduction:

A Loom is a device that causes interlacement of two sets of thread, namely warp and weft threads to form a fabric A loom is a device used to weave cloth and tapestry. The basic purpose of any loom is to hold the warp threads under tension to facilitate the interweaving of the weft threads. The precise shape of the loom and its mechanics may vary, but the basic function is the same. The handloom only helps to keep threads in line and makes the overall

weaving of the textiles easier and more manageable. The art of weaving with the handloom dates back to the 17th century in Africa. Even before handlooms were created, there were different ways by which weaving was achieved. (Ahmed, 2017)

The very first loom in history is the pit loom subsequently the hand loom was developed and power loom. These loom and had neither positive let off device nor warp stop mechanism or a weft changing mechanisms. then the automatic loom was developed which had all the three essential mechanisms namely positive let off device, warp stop mechanisms and weft replenishment mechanism the hand loom was by operated by the wear using his hands to propel the shuttle from one end to another. The production in this type loom was obvious very less and thus varied from weaver to weaver this reduced the strain of the weaver .the shuttle less loom are good example the shuttles less loom have the advantage of higher speed and efficiency then the convention shuttle less loom.

Type

A loom is a mechanism or tool used for weaving yarn and thread into textiles. Handloom weavers commonly use three types of looms: pit looms, stand looms, and frame looms**.** The earliest art of hand weaving along with hand spinning remains a popular craft. There are different types of weaving looms and these include handloom, frame loom and back strap loom.

Handloom

A handloom is a simple machine used for weaving. In a wooden vertical-shaft loom, the heddles are fixed in place in the shaft. The warp threads pass alternately through a heddle, and through a space between the heddles (the shed), so that raising the shaft raises half the threads (those passing through the heddles), and lowering the shaft lowers the same threads the threads passing through the spaces between the heddles remain in place. This was invented in the 13th century. It can have a Jacquard machine attached to it. The handloom was developed by concerned.

Individuals that sought for a way to weave in a faster manner and achieve a quality finish in the products within a shorter period of time. Handloom weavers commonly use three types of looms: pit looms, stand looms, and frame loom (Mishra, 2021) Figure 2

Frame loom

A frame loom is a weaving device where you apply the warp directly to the frame without the use of a warping board, mill, or peg first. The warp is generally hand manipulated during the weaving process either by manual weaving (with a tapestry needle) or through the use of shed tools. The back strap loom is a simple loom that has its roots in ancient civilizations. Textile, still made today with the back strap loom, originated thousands of years ago with the same back strap loom process. It consists of two sticks or bars between which the warps are stretched. One bar is attached to a fixed object and the other to the weaver, usually by means of a strap around the back. The weaver leans back and uses her body weight to tension the loom. On traditional looms, the two main sheds are operated by means of a shed roll over which one set of warps pass, and continuous string heddles which encase each of the warps in the other set. To open the shed controlled by the string heddles, the weaver relaxes tension on the warps and raises the heddles. The other shed is usually opened by simply drawing the shed roll toward the weaver.

2.2.5 Power loom

Introduction

A power loom is a mechanized loom and is one of the key developments in the industrialization of weaving during the early Industrial Revolution. The first power loom was designed in 1786 by Edmund Cartwright and first built that same year (Suryavaanshi, 2019)

Figure 3

Classification

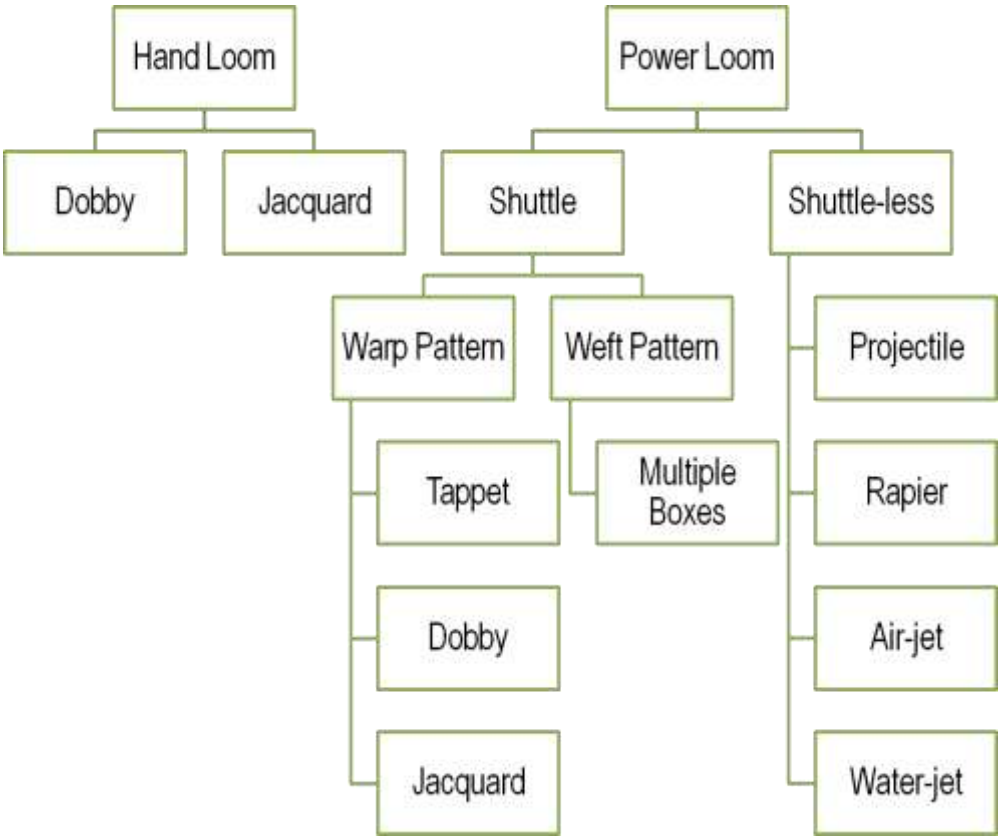


Figure 4

Advantages

- Multicolor weft inserting
- Automatic pick repairing
- Heavier yarns are suitable for air jet looms
- More production.
- Process fast.

WEAVING

Introduction

Weaving is a method of textile production in which two distinct sets of yarns or threads are interlaced at right angles to form a fabric or cloth. Other methods are knitting, crocheting, felting, and braiding or plaiting (xin, 2009)

Classification

The classification defined as follows: simple weaving, patients who proceed from initiation of weaning to successful estuation no need to reinstitute ventilator support within 48 h of estimation on the first attempt without difficulty; difficult weaning process, patients (Ma, 2021).

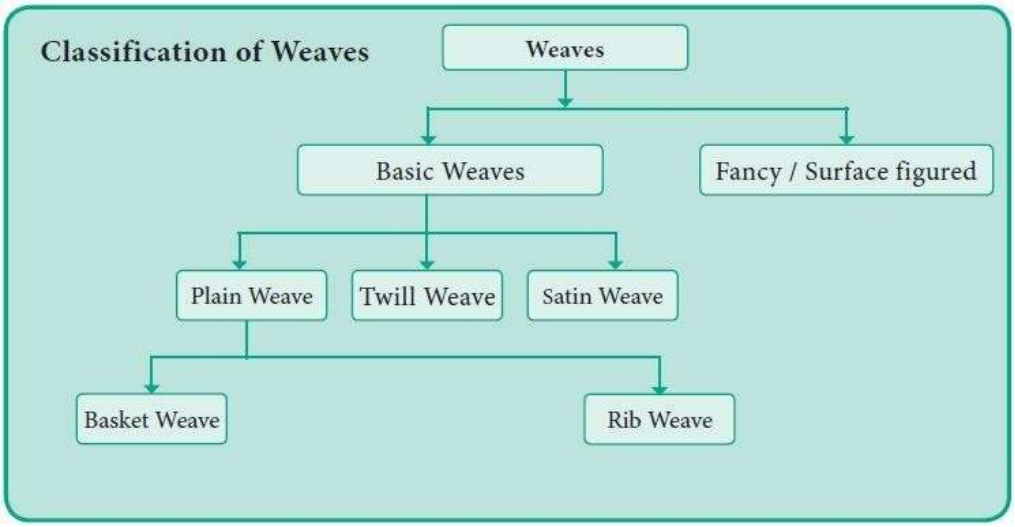


Figure 5

Basic weave

The way the warp and filling threads interlace with each other is called the weave. The majority of woven products are created with one of three basic weaves: plain weave, satin weave, or twill weave**.**

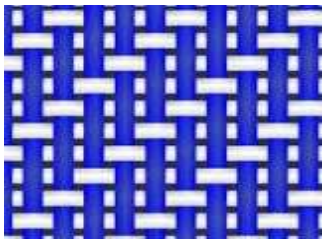


Figure 6

Plain Weave

Plain, or tabby, weave, the simplest and most common of all weaves, requires only two harnesses and has two warp and weft yarns in each weave unit. To produce it, the warp yarns are held parallel under tension while a crosswise weft yarn is shot over and under alternate warps across the width of the web.

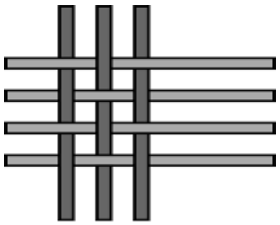


Figure 7

Twill weave

A twill weave has a distinctive pattern of diagonal lines made with raised ridges of thread. Twill fabric can contain many different kinds of material, including cotton, polyester, or wool. Some of the most popular types of twill fabric are denim, khaki, and twill.

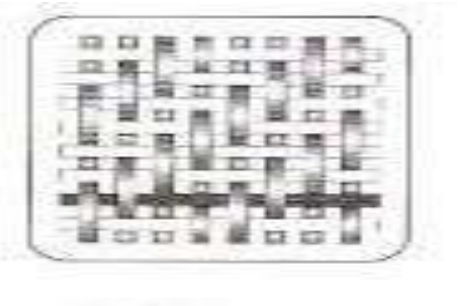


Figure 8

Satin weave

Satin fabrics are almost always warp-faced and made of shiny filament yarns with very low twist to produce a lustrous finish. Satin-woven fabrics are used in clothing and apparel, particularly couture wear, wedding dresses, and drapery linings.

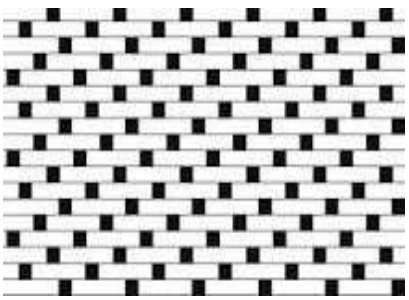


Figure 9

Basket weave

Basket weave or Panama weave is a simple type of textile weave. In basket weave, groups of warp and weft threads are interlaced so that they form a simple criss-cross pattern. Each group of weft threads crosses an equal number of warp threads by going over one group, then under the next, and so on.

Figure 10

Rib weave

Rib is a variant of the Plain weave. It is created very correspondingly to a plain weave. The basic construction follows the same pattern, modified by extending it warp or weft way or both. Rib weave is a basic weave which produces ribs on the fabric.

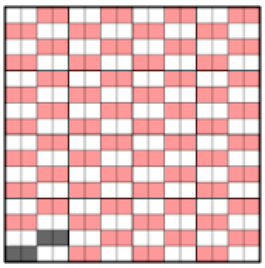


Figure 11

Fancy surface figure weave

Fancy weaves are made by changing the interlacement between the design area and the background. Although the fancy design has great demand it requires more production process involvement. Its production costs are higher than other weave designs. Fancy weave application is more specialized than other.

Surface weave are elastic waves which propagate along the surface of the earth and whose energy decays exponentially with depth. Surface waves contain most of the long

period energy (periods greater than 20 s) generated by earthquakes and recorded at teleseismic distances.

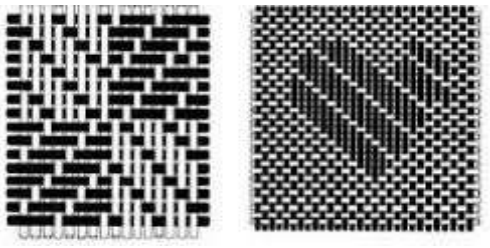


Figure 12

DESIGN

A loom is a device used to weave cloth and tapestry. The basic purpose of any loom is to hold the warp threads under tension to facilitate the interweaving of the weft threads. The precise shape of the loom and its mechanics may vary, but the basic function is the same Even before handlooms and power loom were created, there were different ways by which weaving was achieved Garment design is a concretion of all the design elements, including colour, texture, space, lines, pattern silhouette, shape, proportion, balance, emphasis or focal point, rhythm and harmony. Each of these contributes towards the visual perception and psychological comfort of the garment. (Nidhikalra,et al.2008).

Principles of Design:

The principles of design are a set of rules that designers can follow when creating a composition to create visually pleasing work. The purpose of these rules is to deliver a message in the most organized and functional way (Meller & Elfers 2002).

The main design principles are

- Balance
- Unity
- Contrast
- Emphasis
- Pattern
- Rhythm
- Proportion
- Harmony

. Every design piece has a structure below the surface that holds up the design and makes it visually interesting and balance.

2.4.1.1 Balance

Designs are easier to balance but can also come across as boring. Asymmetrical designs have different sides but equal visual weight. Being able to achieve balance in asymmetry can result in a visually interesting design that has movement. Lack of balance would make your design feel heavy on one side and empty on the opposite. You'll know your design lacks balance when it feels as if it's falling off to one side. (Wilson, 2004)

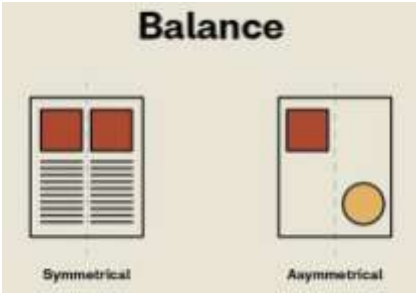


Figure 13

2.4.1.2. Unity

Unity is the harmony produced by all the elements in a design piece. For instance, using similar colors that match and integrate elements organically makes it appear as if they belong together and are not just put on a page.

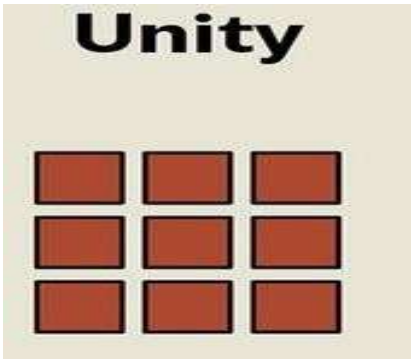


Figure 14

Contrast

Contrast refers to the level of difference between design elements in order to create visual hierarchies. The variation makes certain elements stand out more than others. Contrast can be applied by using colours, textures, sizes, and shapes.

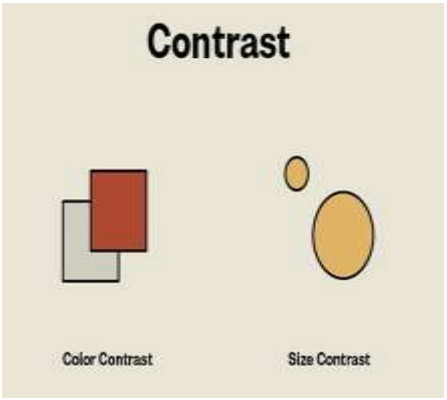


Figure 15

Emphasis

Emphasis is a strategy to get the viewer‘s attention to a specific design element. This can be in any form: a button, a website, or an image. The purpose is to create something that will stand out from the rest of the page. The different elements can be used to highlight a specific part of design like lines, colour, positive/negative relationships, and many more. Emphasis can be created by contrast and with elements of colour (Davis, 2015)

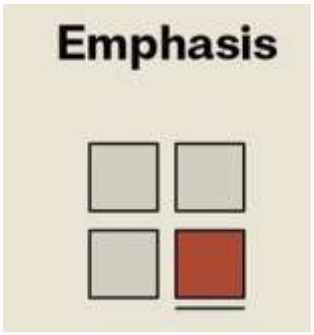


Figure16

Pattern

Pattern is the repetition of more than one design element. While repetition focuses on a single element being repeated, pattern refers to multiple elements repeated throughout a design (e.g. wallpapers and backgrounds).A seamless pattern is a repeated set of elements that flows without a flaw to create a unit. see seamless patterns can be seen predominantly in interior design when using tiles. The use of patterns can enhance the viewer's experience and the look of a final design. In the example below, the pattern repeats

itself from edge to edge without any disruptions. The Advertisement astern is composed of multiple elements with varying sizes. (Mellers&Elfers2002)

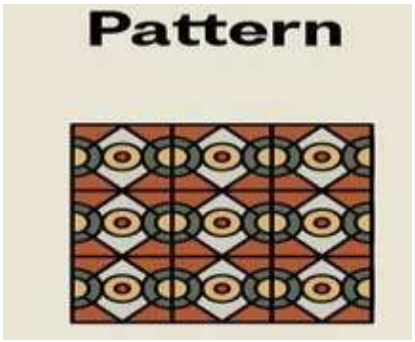


Figure17

Rhythm

Rhythm has more complexity than the previous principles of repetition and pattern. Repetition and pattern are applied to the same element throughout a design. Rhythm is the visual tempo of a combination of elements when used repeatedly and with variation, it gives the feeling of organized movement. Rhythm is usually hidden in works of art and is not as obvious as the design principles of repetition and pattern. In the example below, the diagonal lines aren't arranged in a specific pattern. Instead, there's a repetition of the elements with variations. (Jacob,1996)

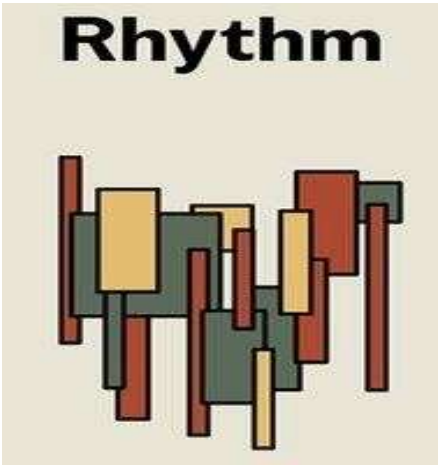


Figure 18

Proportion

Proportion is the sense of unity created when all the elements in a composition relate well with each other. Proportion is mostly about scale and size when two elements are compared. For instance, in art and drawing, proportion is important for the elements to look realistic. Proportion doesn‘t necessarily refer to the size of one element but to the relationship

of two or more elements. In layout hierarchy, the proportion of the headline compared to the photo caption needs to be larger as the headline is the most important element. Smaller elements have less importance. A good sense of proportion in a composition, can add harmony and balance (Sumathi ,2002)

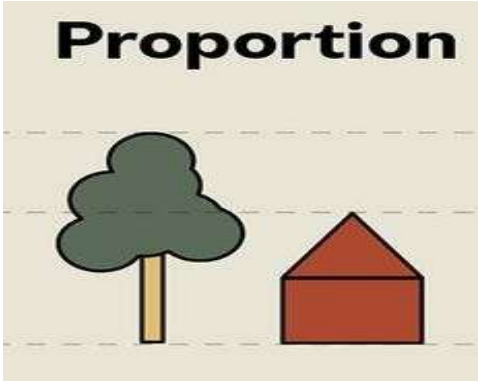


Figure 19

Harmony

Harmony is the sense of cohesiveness between the elements in a composition. The elements shouldn‘t be exactly the same or completely different but related in some way. Color palettes or similar textures can create a sense of unity between different components. Using similarly shaped items will create harmony because they will seem related. Not enough or too much harmony can make a design dull; there needs to be some kind of variety for it to be visually interesting (Colussy & Greenberg 2007)

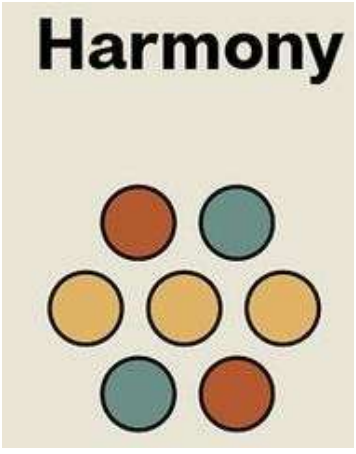


Figure20

ELEMENTS OF DESIGN:

INTRODUCTION

Design process involves the combining of known design components in varied ways to create new fabric. Element of design are those components which the designers employ in all from of art design, whether the design of garment. Understanding of these elements and using theme in different ways enables the designer to produce different art visual and effects (Sodhia 2004)

The following are the elements of design

- **Line**
- **Shape**
- **Colour**
- **Texture**
- **Space**

LINES

Lines create direction on a page by pointing to specific elements that help the viewer‘s eyes know where to go (Sudhi,2004)

SHAPE

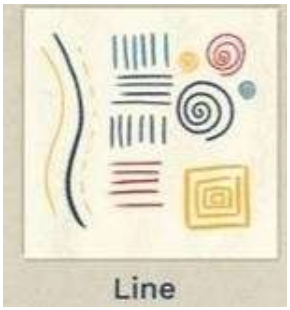


Figure 21

Shapes can also draw attention. Using a group of similar shapes and breaking the group with a different shape will create tension and draw the eyes.(Nedira,2017)

Figure 22

COLOR

Colour can create an emphasis in any design. Buttons on a website tend to contrast with the background to create a sense of urgency and attention (Mahadevan, 2008)

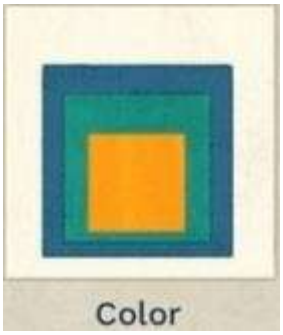


Figure 23

TEXTURE

Texture can be seen in materials to enhance tactile features. For instance, a business card can have an emboss or relief on a logo to emphasize it. Digitally texture can be applied as a drop shadow on a button to appear three-dimensional (Jacob, 1996)

Figure 24

Space

Space is also an option to emphasize certain elements in your design. Enough white space around an object can prioritize the focus on a single element. For instance, Apple has a clean and direct idea of emphasizing products (Sodhia, 2004)

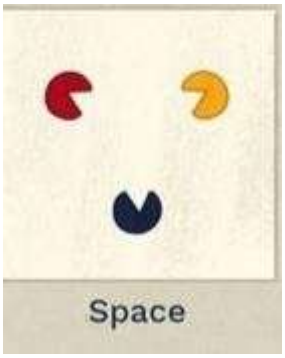


Figure 25

COLOR

A colour wheel also referred to as a colour circle) is a visual representation of colors arranged according to their chromatic relationship. Begin a color wheel by positioning primary hues equidistant from one another, then create a bridge between primaries using secondary and tertiary color (Narang, 2006)

Figure 26

Type of colour

2.5.1.1 Primary Colours:

Red, Yellow, and Blue colour at are basic essence; those colors that cannot be created by mixing others. These three primary colour are the foundation of the color wheel. They are called the primary colors because their true colour pigments cannot be created by mixing any other combination of colour and all other colons in the colour wheel are derived from these three hues. When painting it is important to have a true red, blue, and yellow to help you mix a variety of other colors. (Gorden, 2002)

2.5.1.2. Secondary Colors:

Violet, Orange, and Green t hose colours achieved by a mixture of two primaries. Secondary colors are created by mixing equal parts of two primary colors together.

Red + Blue = Viole

Red + Yellow = Orange

Blue + Yellow = Green

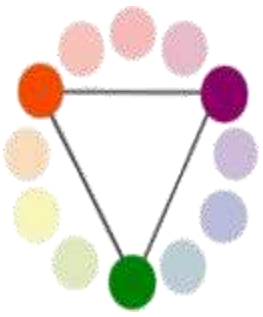


Figure 27

2.5.1.3 Tertiary Colors:

Blue-Violet, Red-Violet, Red-Orange, Yellow-Orange, Yellow-Green, and Blue-Green. Those colours achieved by a mixture of primary and secondary hues. In total, there are six tertiary colors. Tertiary colors are created by mixing equal parts of a primary and secondary color together

Figure 28

2.6. GARMENT DESIGN

Garment design is an integration of all the design elements including color, texture, space, lines, pattern, silhouette, shape, proportion, balance, emphasis or focal point, rhythm and harmony. Each of these contributes towards the visual perception of the garment (Patil et,al , 2016)

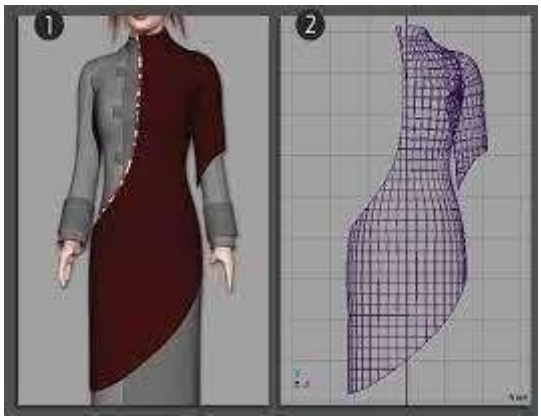


Figure 29

3. METHODOLOGY

SURVEY

Selection of sample

Conduct of the study

Analysis of data

DESIGN DEVELOPMENT

Preparation of garment design

Computerized design development

Evaluation and selection of garment designs

PATTERN CONSTRUCTION

Body measurement

Measurement

DRAFTING PROCEDURE

CONTRUCTION OF GARMENTS

Selection of materials

Preparation of fabric for cutting

Layout transferring and cutting the materials

Construction of garments

FINISHING OF GARMENTS

EVALUATION OF CONSTRUCTED GARMENTS

SURVEY

INTRODUCTON

Selection of sample

Questionnaire is a device for securing to answers to question by using form by which the respondents fill by themselves. Questionnaire method was adopted for the collection of data. The questionnaire was formulated in order to elicit information about design and developed of fashionable girls top from power loom scrap fabric this was pretested and modified as required .Thus finalized questionnaire is presented in the appendix (A). (Gupta, 2009)

Conduct of the study

The data was collected form collecting from questionnaire.

Analysis of Data

The Data after collection has to be processed and analysis in accordance with the outline laid down for the purpose at the time of developing the research plan .Technically processing implies editing ,coding ,classifying and tabulating collected data so that they are to a meable to analysis. The collected data was collected tabulated and statistically analyzed. (Gupta, 2009)

DESIGN DEVELOPMENT

Garment design is a concretion of all the design elements, including colour, texture, space, lines, pattern silhouette, shape, proportion, balance, emphasis or focal point, rhythm and harmony. Each of these contributes towards the visual perception and psychological comfort of the garment. Garment design has a significant effect on moisture transfer, the amount of body surface area covered, comfort, the looseness or tightness of fit, absorbency, air flow and the ventilation through the openings (Gupta, 2011**).**

Preparation of garment design

Computerized design development

The selected designs were developed and Adobe Photoshop was used to illustrate these selected garment designs. Design development starts with a selection of appropriate tools. Selecting rectangle tool from the tool box, and drawing the outline for the design. Making necessary curves by using the option convert to curve from arrange options in the menu bar and is also used to add extra points for shaping neck line, arm hole and crotch lines.

The fill tool is use to fill the required colour, pattern and various effects .The fill is perfect only when the welding is done correctly .Make the dark shades using burn tool and light tones using dodge tool (shading and highlights).Trimming and decorations can be used with style and design to generate different and attractive designs. Based on the procedure, designs were developed for 4 selected designs.

Evaluation and selection of garment designs

The designs were evaluated according to the preference of the subjects by showing the computer aided garment designs with the help of visual aids. From these preferences, 4 designs were selected for garment construction.

PLATE - I
GARMENT DESIGNS

Style 4 Style 5 Style 6

PATTERN CONSTRUCTION

The first step of clothing design is pattern construction. Pattern for garment is the blue print or guide on the basis of which the fabric is cut. Pattern making is a bridge which functions between design and production. A sketch can be turned into a garment via a pattern which interprets the design in the form of the garment components. (Sodhia, 2004)

Body measurement

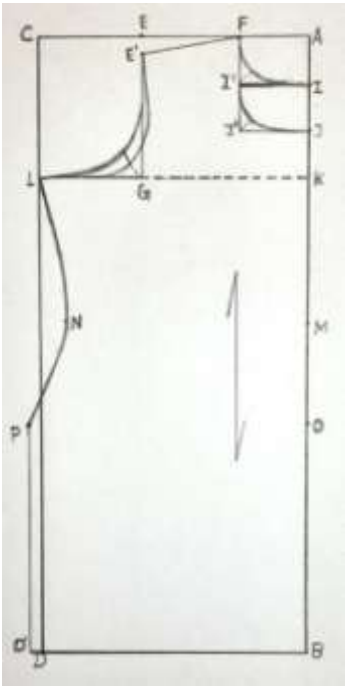
Drafting is used for construction of pattern. Drafting conforms to standard measurements. Standardised size chart for teenage girl‘s difference clothing brands were used for this selection. The sizes for teenage girls were used for pattern construction and garment were stitching.

Measurement

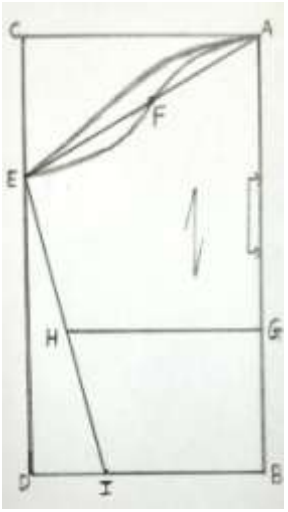
1. Length of garment-39‖
2. Shoulder width-12‖
3. Bust- 34‖
4. Bust point -9‖
5. Arm hole -16‖
6. Waist- 34‖
7. Half sleeve length-6‘
8. Sleeve width -5.5‖
9. Front neck depth-6.5‖
10. Back neck depth-7‖
11. Elbow sleeve length-10‖
12. Elbow sleeve width-7‖
13. Hip-41‖
14. Garment width -28‖

DRAFTING PROCEDURE

TOP



1. AB= length of top
2. AC=1/4 of bust +1.5‘‘
3. Make a rectangular block ABCD
4. Make a point E on AC, AE=1/2 of shoulder
5. Make a point $E^1$1‖ down the point E, EE^1 = 1‖ shoulder drop
6. Make a point F on AC, AF= ½ of bust. Join FE^1
7. On the line AB mark K, AK=1/4th of chest -5‖. Join K to point L on CD.
8. From K mark a point M, KM=7‖. Join M to point N, MN=1/4 OF waist +1‖
9. On the line AB mark O, MO=7‖. Join O to point P, OP=1/4 of hipline +1.5‖. Shape the waist line using French curve. From P draw a parallel line PD^1 to CD.
10. From point A mark I and J, AI=3‖, AJ=5‖. Shape the neckline.



SLEEVE

1. AB=Length of sleeve
2. AC=1/2 of armhole. Make a rectangular block ABCD.
3. Make a point E on CD,CE=1/12 of bust
4. Make a midpoint F on line AE. Shape arm hole as shown in draft.
5. Make a point G on AB, AG=9‖, From G mark a point H, GH=1/2 of mid sleeve width
6. Make a point I on BD, BI=1/2 of sleeve width.

CONTRUCTION OF GARMENTS

Selection of materials

According to the selected designs, fabrics were sourced. All the materials are from various places like garment production area, power-loom fabric production in and Erode

Preparation of fabric for cutting

Before cutting, the scrap fabric was arranged according to the design then washed, dried and pressed as per requirement.

Layout, transferring and cutting the materials

Trial layouts were made by keeping weights or 2 pins per pattern to make sure that the cloth would be sufficient. Straight grain line on patterns was kept parallel to the fabric selvedge .To ensure this, the pattern was measured, adjusted and pinned on the fabric as suggested by Saluja (2006).

Seam allowances width vary with the type of garment. A basic seam for example: side seam, style seams-1-1.5 cm. Enclosed seams, for collar, cuffs-0.5 cm depth and decorative seams usually require more seam allowance. No seam allowance is required on the fold line. It is important that seam allowances added to the pattern are accurate and clearly marked (Aldrich, 2003).

Accordingly, the patterns were placed on the fabric in the most economical way. Adequate seam allowances were left for each piece of the fabric. The pattern details such as seam lines, grain line, name of the pattern and cut number were marked on that fabric. Enough material was left for cutting belts, facings and pipings.

The drafted and altered patterns were transferred using different tools namely tailors chalk and tracing wheel suitable for various materials. After transferring on the fabrics were cut accordingly with seam allowance.

Construction of garments

Every design is composed of different elements. These elements are dot, line, shape, value, colour and texture .These elements of design may be used on a garment in a variety of ways (Sodhia, 2004). Thus the elements were used in the construction of the garment like seams, tucks darts, pleats, hemlines and panels.

Garment construction is a technical accomplishment that requires the knowledge and skills of basic sewing techniques that includes application of stitches, seams, darts, gathers,

pleats and edge finishing, etc. To construct the garment, various types of the seam are also used such as flat seam, lapped seam, French seam, slot seam, etc

Garment production is an organized activity consisting of sequential processes such as laying, marking, cutting, stitching, checking, finishing, pressing and packaging. This is a process of converting raw materials into finished products. (Kamrul, 2018)

The following are the step followed for construction

- Finish the front and back neckline was finished using bias binding strips.
- At the back side fabric yoke was attached.
- The shoulders were joined together.
- The sleeves are sewn and sleeve bottom edges are finished.
- The side seams are sewn together.
- A small side slit is created and the edges are finished.
- The bottom hemline was stitched.
- The excess threads were trimmed and fasteners were attached.

3.5.6 Finishing of Garment

After garment construction fasteners were attached in the garments. Excess threads are trimmed and the garments ironed to give neat appearance.

EVALUATION OF CONSTRUCTED GARMENTS

In order to evaluate the fitness of the constructed final garments, some textile experts were selected who have thorough knowledge on Textiles and Fashion. A Performa was prepared and given to the selected judges for evaluating the same and the details are given in the Appendix. (E). The data thus collected was consolidated and presented in the Chapter: Results and Discussion.

PLATE-II

MUSLIN GARMENT CONSTRUCTION

Front Back

Muslin Garment 1

Front Back

Muslin Garment 2

Front Back

Muslin Garment 3

Front Back

Muslin Garment 4

PLATE-III

FINAL GARMENT CONSTRUCTION

Front Back

Garment 1

Front Back

Garment 2

Front Back

Garment 3

Front Back

Garment 4

4. RESULTS AND DISCUSSION

The findings of the study are discussed under the following headings:

Age group of Selected Sample

Location Details

Interest in Grooming

Awareness about Scrap Fabric

Interest in Incorporating Scrap Fabric on Garment

Type of Outfit Preferred for Teenage Girls

Type of Pattern Preferred

Acceptance of Scrap Fabric for Teenage Girls Top

Major Criteria for Formal Wear

Scrap Fabric Waste in Loom

Selected Designs for Garment Construction

Evaluation of the Muslin Garments

Evaluation Of Constructed Garments

Age group of Selected Sample

The sample was divided into three age groups as below-18 years, 18 years to 20 years. Table - I and Figure 30 shows the distribution of respondents in different age groups.

TABLE - I

AGE GROUP OF SELECTED SAMPLES

S.No	Age Group	Frequency	Percentage %
1	Below 18 years	2	10
2	18 years to 20 years	18	90

It can be observed from Table - I and Figure 30 that the maximum number of 90 % respondents belong to age group of 18-20 years. Hence it could be concluded that the majority of the samples belong to 18-20 years.

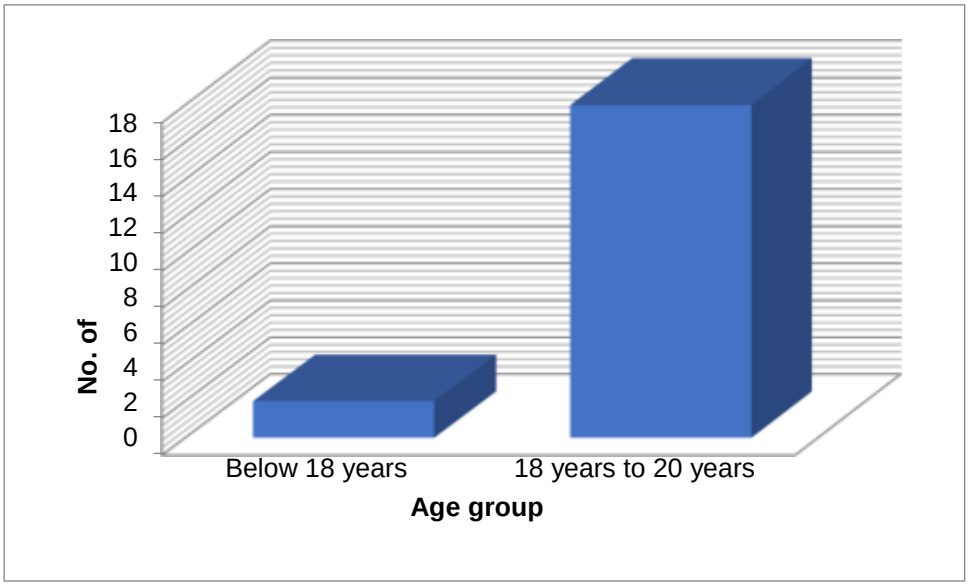


FIGURE - 30

AGE GROUP OF SELECTED SAMPLES

Location Details

The details about the samples location is given under the Table - II and Figure -31

TABLE - II

LOCATION DETAILS OF THE SAMPLE

S.No	Location	Frequency	Percentage %
1	Urban	18	90
2	Rural	2	10

From the above Table-II and Figure-31, it is clear that 90 % and 10 % of respondents belong to Urban Rural areas respectively. Hence for this study the maximum number of Teenage girls fall under Urban area.

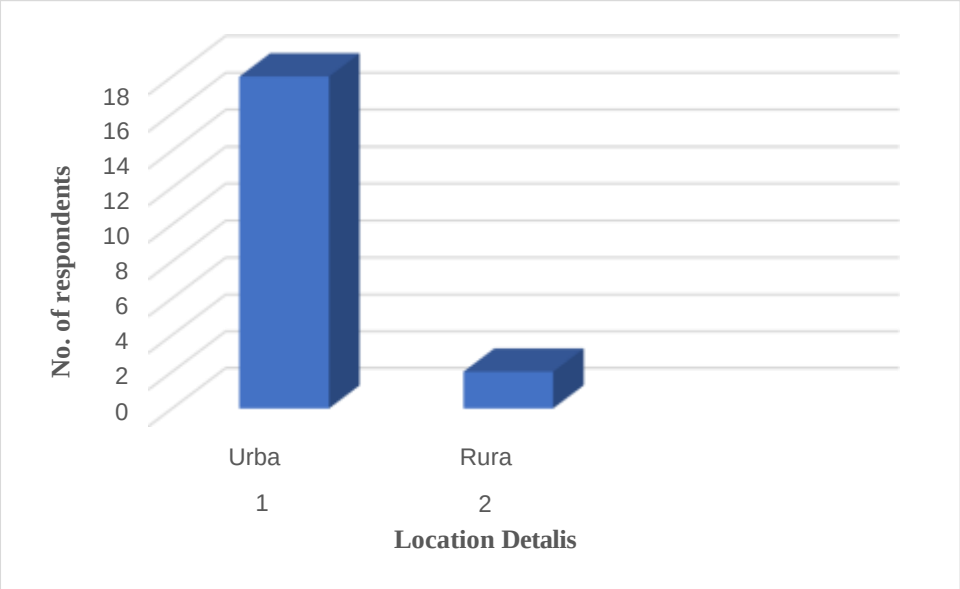


FIGURE - 31

LOCATION DETAILS OF THE SAMPLE

4.4 Interest in Grooming

The survey results furnish information on whether women between the age group 18-20 years (sample) are passionate about dressing themself. The details regarding their preference are presented in the Table - III and Figure - 32

TABLE - III

INTEREST IN GROOMING

S.No	Interest in Grooming Oneself	Frequency	Percentage %
1	Yes	16	80
2	No	4	20
3	May be	0	0

From the Table - III and Figure -32, it can be concluded that 80 % of Teenage girls are interested in grooming and 20 % of them are not interested in grooming. Hence it could be concluded that higher number of samples are interested in adorning themself.

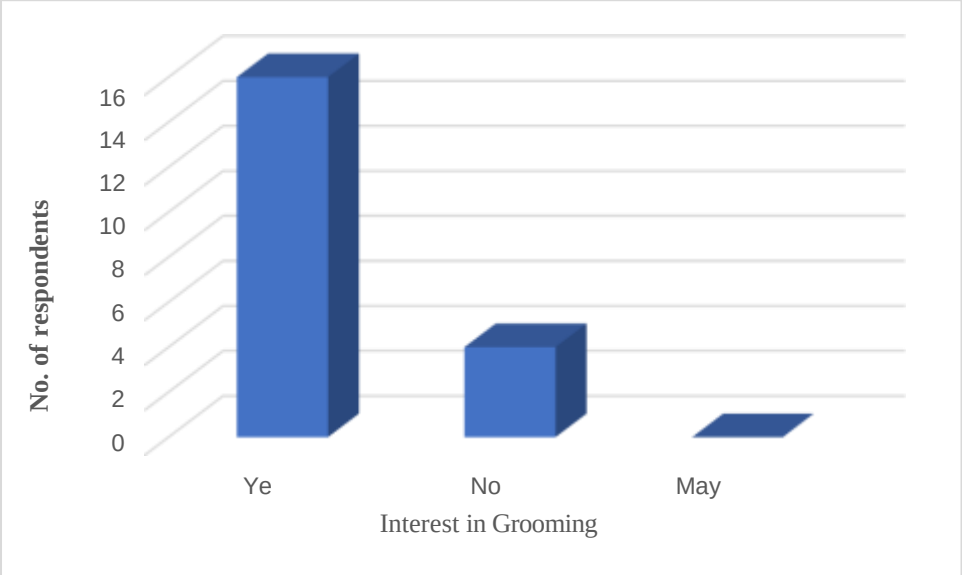


FIGURE - 32

INTEREST IN GROOMING OURSELF

Awareness about Scrap Fabric

Selected teenage girls were asked if they were aware of Scrap Fabric, and the details are displayed in the below Table - IV and Figure - 33

TABLE - IV

AWARENESS ABOUT SCRAP FABRIC

S.No	Awareness about Scrap fabric	Frequency	Percentage %
1	Yes	2	10
2	No	18	90

The above Table - IV and Figure - 33 clearly shows that 10 % of them were not having any knowledge about scrap fabric. Hence it could be concluded that majority of teenage girls are not having any knowledge about of scarp fabric.

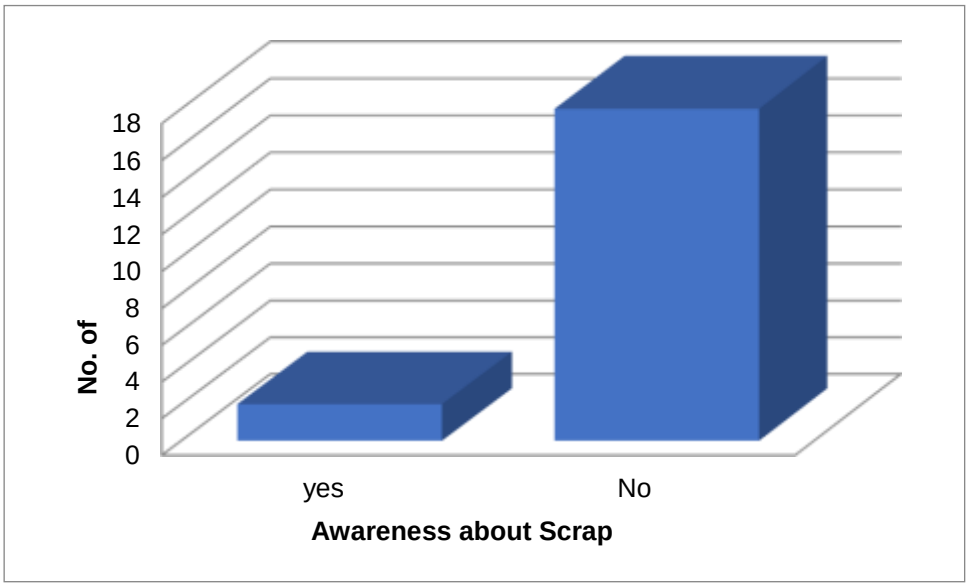


FIGURE - 33

AWARENESS ABOUT SCRAP FABRIC

Interest in Incorporating Scrap Fabric on Teenage Girls Garments

The survey results furnish information on whether Teenage Girls between the age group 18-20 years (sample) are interested in incorporating Scrap Fabric on Teenage Girls Garments. The details regarding their preference are presented in the Table - V and Figure – 34

TABLE - V

INTEREST IN INCORPORATING SCRAP FABRIC ON TEENAGE GIRLS GARMENTS

S.No	Interest in Incorporating Scrap Fabric on Teenage Girls Garments	Frequency	Percentage %
1	Yes	20	100
2	No	0	0

From the Table - V and Figure -34, it is clear that 100 % of them Interest in incorporating scrap fabric on teenage girls garments. Hence it could be concluded that the majority of the samples were interested in scarp fabric on teenage garments.

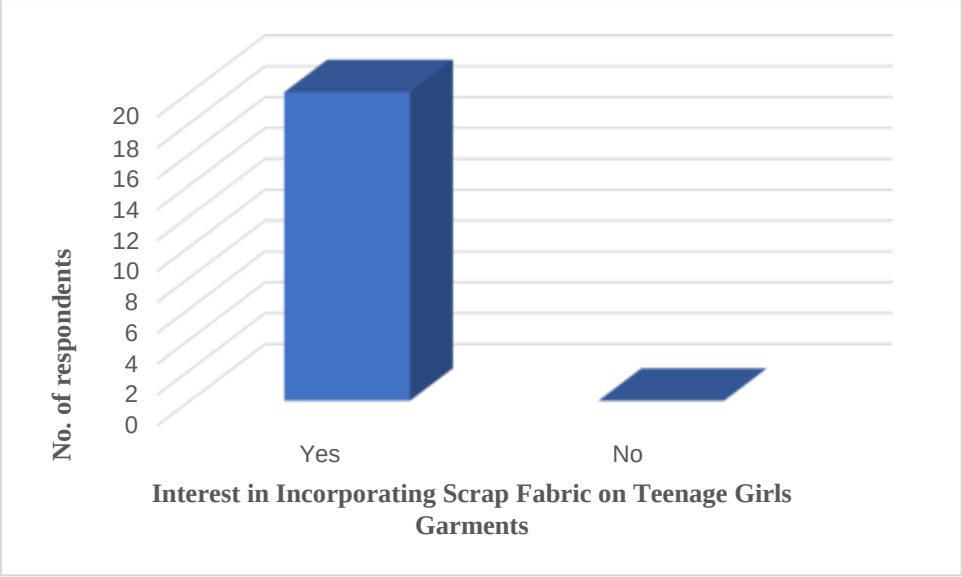


FIGURE - 34

INTEREST IN INCORPORATING SCARP FABRIC ON TEENAGE GIRLS GARMENTS

Type of Outfit Preferred for Teenage Girls Garments

The details about selected type of garments preferring a teenage girls are given in Table - VI and Figure 35.

TABLE - VI

TYPE OF OUTFIT PREFERRED FOR TEENAGE GIRLS GARMENTS

S.No	Type of Outfit	Frequency	Percentage %
1	Ethinic Top	12	60
2	Western Top	8	40

From the Table - VI and Figure 35, it is clearly shows that 60 % of teenage girls selected ethinic top and 40 % of them selected Western top. Hence it could be concluded that majority of teenage girls are selected ethinic top.

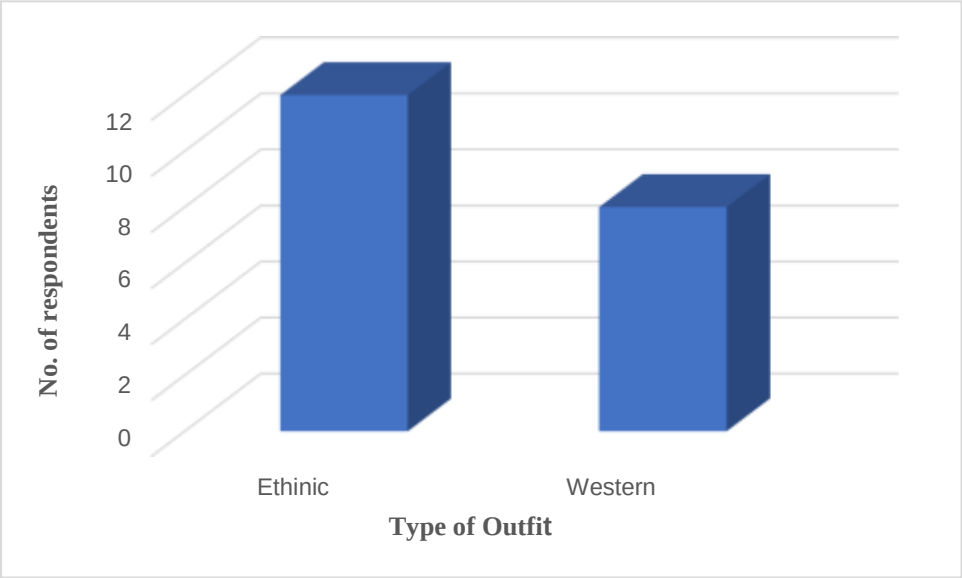


FIGURE – 35

TYPE OF OUTFIT PREFERRED FOR TEENAGE GIRLS GARMENTS

Type of Pattern Preferred

The details about the preferred combination of Indian tribal art is shown in the Table - VII and Figure 36.

TABLE - VII

TYPE OF PATTERN PREFERRED

S.No	Type of Pattern	Frequency	Percentage %
1	Stripes and Checks	16	70
2	Dots and Floral	4	20

From Table VII and Figure- 36 shows it was clear that 70 % of teenage girls are selected for Stripes and Checks pattern and 20 % of them selected Dots and Floral patterns on top. Since Stripes and Checks pattern on teenage girls top were selected for this research.

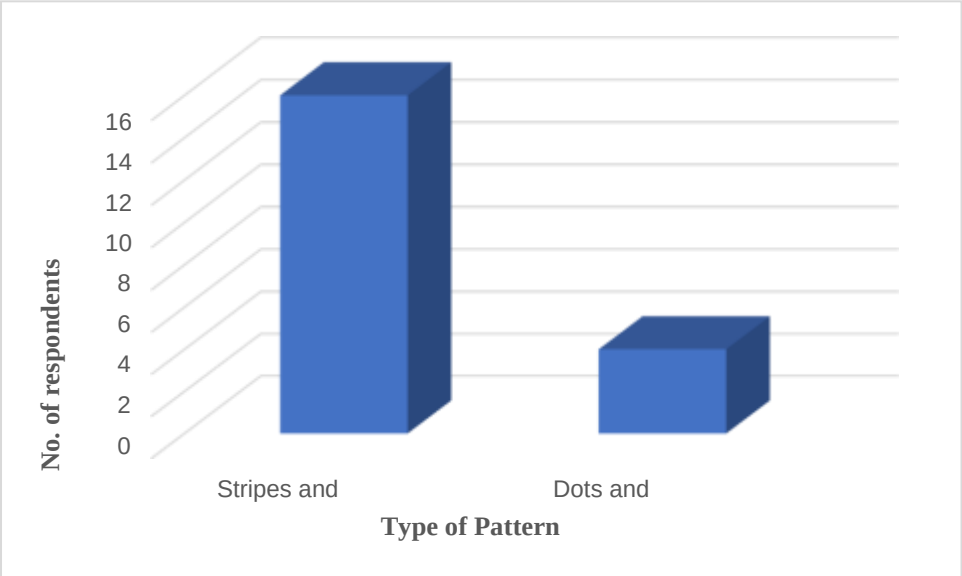


FIGURE – 36

TYPE OF PATTERN PREFERRED

Acceptance of Scarp Fabric for Teenage Girls Garments

The survey results furnish information about teenage girls between the age group 18-20 years (sample) acceptance of scarp fabric for teenage girls. The details regarding their preference are shown in the Table - VIII and Figure -37

TABLE - VIII

ACCEPTANCE OF SCARP FABRIC FOR TEENAGE GIRLS GARMENTS

S.No	Acceptance of Scarp Fabric for Teenage Girls Garments	Frequency	Percentage %
1	Yes	20	100
2	No	0	0

From the Table -VIII and Figure - 37, it is clear that 100 % of them acceptance of scrap fabric for teenage girls garments. Hence it could be concluded that the majority of the samples were acceptance scrap fabric garments.

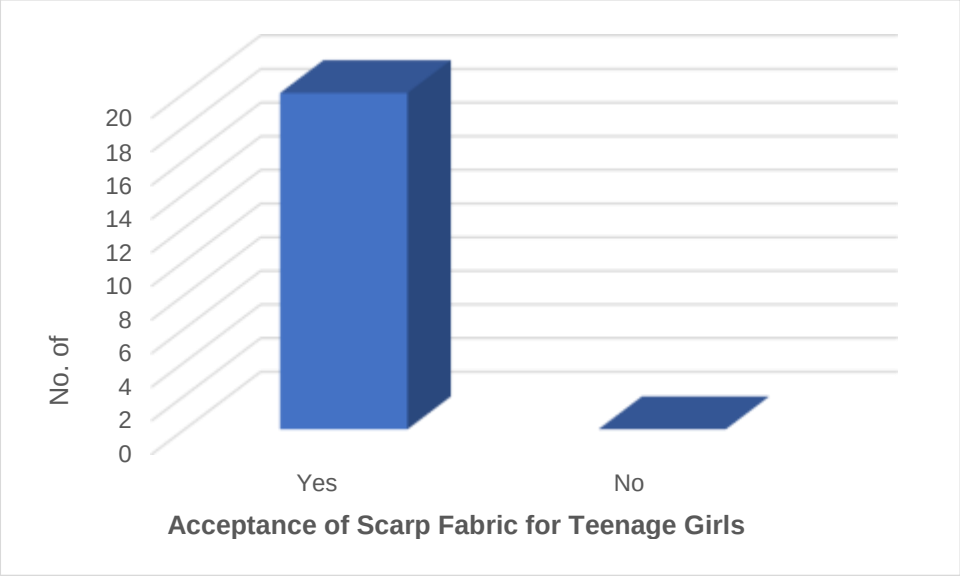


FIGURE - 37

ENCOURAGE SCRAP FABRIC FOR TEENAGE GIRLS GARMENTS

Major Criteria for Formal Wear

The survey results furnish information on the major criteria for formal wear for women between the age group 18-20 years (sample). The details regarding their preference are presented in the Table - IX and Figure - 38

TABLE - IX

MAJOR CRITERIA FOR FORMAL WEAR

S.No	Criteria for Formal Wear	Frequency	Percentage %
1	Appearance	6	30
2	Style	4	20
3	Uniqueness	10	50

From the Table – IX and Figure - 38, it is clear that 50 % of them selected samples prefer to have Uniqueness in their formal outfit, followed by 30 % of them rated comfort to be the most important aspect. Only 20 % of them selected to style. Hence it could be concluded that the majority of the samples were interested in scrap fabric garments. Since most of the teenage girls rated Uniqueness to be the most important aspect, more attention was given to the comfort aspect.

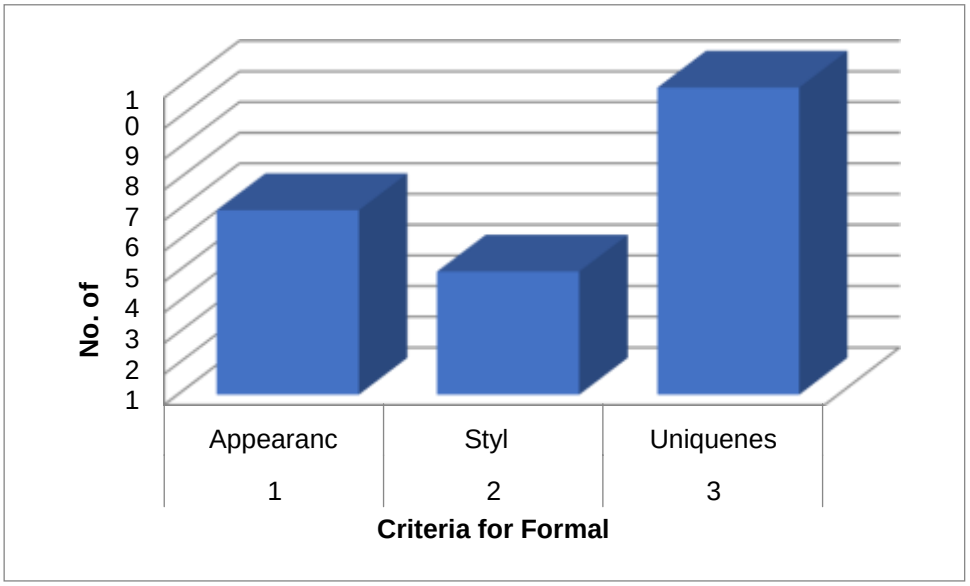


FIGURE - 38

MAJOR CRITERIA FOR FORMAL WEAR

Scrap Fabric Waste in Loom

The details on which industrial of fabric mostly come scrap fabric waste in is shown in the Table - X and Figure-39.

TABLE - X

SCRAP FABRIC WASTE IN LOOM

S.No	Scrap Fabric Waste in Loom	Frequency	Percentage %
1	Power-loom	19	95
2	Hand-loom	1	5

The about Table - X and Figure -39 clearly shows that 95 % of teenage girls know about Power-loom scrap fabric mostly waste in industrial. Only 5 % of them selected handloom because of handloom fabric are more expensive.

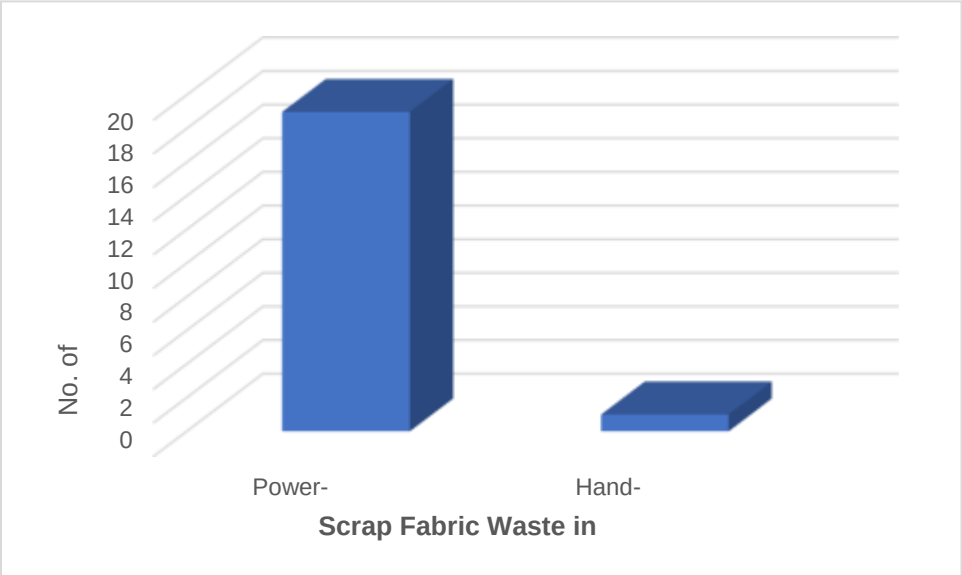


FIGURE - 39

SCRAP FABRIC WASTE IN LOOM

Selected Designs for Garment Construction

In order to evaluate the designed garments, 20 teenage girls from Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore were chosen randomly for the study. Designs were created using CAD and these designs were attached on google forms and asked them to select based on their appearance. The data thus collected were carefully consolidated and presented in Table - XI.

TABLE - XI

SELECTED DESIGNS FOR GARMENT CONSTRUCTION

S.No	Selection of Garment Design	Frequency	Percentage %
1	Style 1	0	0
2	Style 2	0	0
3	Style 3	5	25
4	Style 4	6	30
5	Style 5	4	20
6	Style 6	5	25

From the Table XI, it is clear that Style 4 was selected by 30 % of teenage girls, Style 3 and Style 6 was selected by each style have 25 % and style 5 was selected only 20 %. Hence, these were commonly selected by a larger group of samples, respective styles were chosen for final garment construction.

Evaluation of Muslin Garment Constructed

The constructed Muslin Garments was evaluated by the selected 10 teenage girls. They were asked to requested to express their satisfaction with each and every measurement by checking their fit, ease, and comfort. Opinions on these subjects are stated in Table - XII.

TABLE - VIII

S.No	Aspect	Good	Satisfactory	Not Satisfactory
A	Girls Top			
	1. Chest Circumference	100	0	0
	2. Waist Circumference	100	0	0
	3. Hip Circumference	100	0	0
	4. Front neck depth	100	0	0
	5. Back neck depth	100	0	0
	6. Shoulder width	100	0	0
	7. Shirt length	100	0	0
	8. Shirt bottom circumference	100	0	0
	Sleeve			
	1. Armscye depth	90	10	0
	2. Sleeve circumference	100	0	0
	3. Sleeve length	100	0	0
	4. Elbow circumference	90	10	0

From the above Table - XII it was clear that for Girls Top, all the aspects except elbow circumference and Armscye depth were rated as good by 100 % of the subjects and 10 % rated the elbow circumference and armscye as satisfactory. Hence it could be concluded that the measurements were 99 percent good and they can be carried forward for final garment construction.

Evaluation of Constructed Garments

The constructed scarp fabric top were presented and requested 25 experts who have thorough knowledge in textile and fashion to evaluate its comfort, ease to wear, fitness, appearance, expression of fabric combination and texture.

Evaluation of Constructed Scrap Fabric Top

The evaluation of constructed Scrap fabric tops by selected 25 experts are given in the Table -XIII.

TABLE-XIII

EVALUATION OF CONSTRUCTED SCRAP FABRIC TOPS BY TEENAGE GIRLS

Design Code	Style 4			Style 3			Style 5			Style 6		
	GOOD	FAIR	POOR	GOOD	FAIR	POOR	GOOD	FAIR	POOR	GOOD	FAIR	POOR
Design	96	4	-	100	-	-	100	-	-	96	4	-
Ease to wear	92	8	-	100	-	-	98	2	-	92	8	-
Fitness	100	-	-	100	-	-	98	2	-	100	-	-
Appearance	100	-	-	100	-	-	100	-	-	100	-	-
Expression of Fabric combinations	100	-	-	100	-	-	100	-	-	100	-	-
Texture	100	-	-	100	-	-	100	-	-	100	-	-

From the above table-XIII, it is clear that 96 % and 4 % of experts felt that the constructed Style 4 and Style 6 had good and fair Design respectively. Similarly, 92 % and 6 % of experts felt that the constructed shirt had good and fair ease to wear respectively. Style 3 had 100 % good on all the aspects and style 5 had good 98 % ease to wear and 2 % of fair ease to wear. Similarly, 98 % and 2 % of experts felt that the constructed top had good and fair fitness respectively. All the other aspects like fitness, appearance, expression of art form and texture were rated good by 100 percent of selected experts. Finally, it can be concluded that the experts were extremely satisfied with the comfort, ease to wear, fitness, appearance, expression of fabric combination, and texture.

5. SUMMARY AND CONCLUSION

India's textile industry contributes about 14 per cent to industrial production; 4 per cent to the country's gross domestic product 17 per cent to its export earnings; and is a source of direct employment for over 35 million people, which makes it the second largest provider of employment after agriculture Although the growth of power loom industry was slow initially; it has started gearing up now .The number of shuttle-less looms has been augmented to almost 50,000 and from this about 35,000 looms are working in the decentralized Punjab and Ludhiana sector (SWATI, 2020)

Fashion is about meeting today‘s needs while ensuring that the way we go about meeting those needs meet future needs sustainable fashion is also about benefitting the people involved throughout the fashion supply chain from farmers to consumers to everyone working in end-of-life facilities such as recycling factories. The Garment Industry in India is a one trillion industry. Almost 33 % of its knitwear production and about 20% of its woven-garment production, both by volume enters export markets. Overall, about 25 % of the volume of its garment production goes into export markets, leaving 75 % for domestic consumption. The industry covers over one million units and employs about 6 million workers, both directly and indirectly in almost equal proportion. The indirect portion helps to sustain the direct production sector in the shape of items associated with organized sector of the garment industry is roughly 20% of the total industry, concentrating chiefly on exports. (Birtwistle & Moore, 2007)

Since only few studies were carried out the investigator the topic designing and development of fashionable girls top form power loom scrap fabric

- To select fabric from power loom scrap fabric
- To design teenage girl‘s tops from selected scrap fabric
- To construct Teenage tops from the scrap fabric
- To evaluate the constructed girls tops

This research has met the objective of studying to gather information about design and development of fashionable girls top form power loom scrap fabrics and need of by analyzing the results obtained from the questionnaire and found the needs which could be overcome by the designer clothing. The clothing preferences for teenage girls top were found out from survey results. Keeping the clothing preferences in mind the clothing was designed

and result has shown that the constructed garments were found to be suitable in terms of comfort. It is trendy and colorful.

The body measurements of the selected teenage girls between the age group 18-25 years was standardized. Scrap fabrics was selected, and range of garments was designed 4 different garments were selected and constructed . The suitability level of constructed garments was attained by evaluation of garments and feedback about the design, suitability, fit and overall appearance.

For this, the investigator prepared an online survey form to collect information about the scrap fabric, garment design & garment preferences for the teenage girls. The questionnaire was distributed via online to over to collect the information. The required data were collected and recorded. The investigator had designed 6 garment designs through CAD Design and those designs were forwarded to 25 textile experts using Google forms to know their views about the designs. Finally, highly rated four garments was selected constructed.

FINDINGS OF THE STUDY

SURVEY

- Ninety percent of the teenage girls were not having any knowledge about scrap fabric.
- Hundred percent of samples are interested in incorporating scarp fabric on teenage garments.
- With regard to the selection of garment preference, 60% of them selected ethinic top and followed by only 40% of them selected western top.
- As per as the materials is concerned, 70 % of teenage girls selected stripes and checks pattern fabrics.
- Majority of the teenage girls accepted for scrap fabric top.

EVALUATION OF THE MUSLIN GARMENTS

To visually evaluate the muslin garments, a few samples were selected to check if garment length, circumference, width and depth were good and of the right fit. Only the measurements of shoulder to knee length and armscyez depth was increased were rated as good by 90 % of samples, all the other measurements of were rated 100 % good.

EVALUATION OF THE CONSTRUCTED GARMENTS BY THE EXPERTS

The evaluation was done to check design, ease to wear, suitability, appearance, texture and expression of scrap fabric combinations. Almost all the experts were satisfied with the constructed garments and rated as good in almost all aspects.

CONCLUSION

It can be concluded from the study that nowadays, teenage girls show more interest in buying new designs in clothes. On the other hand, in an increasingly healthy and environmentally aware world, consumers and the apparel manufacturing industry have been looking for environmentally friendly clothing. As a result, the garments created using scarp fabric from a power-loom can find a market. The created tops from power-loom scarp fabric can reduce environmental hazards and land filling. The garments designed are aesthetically pleasing accepted by teenage girls.

BIBLIOGRAPHY

Adanur S. (2001) Handbook of Weaving. Technomic Publishing Company, Inc., Lancaster, Pennsylvania, USA.

Ahmed, Toufique & Sarker, Jahid & Ashique, S.M., (2017). Loom Settings and Fabric Structure: Two Major Influencing Factors of Warp Tension Variation. 29. 68-79.

Amuth, K. and Priyanka, R., (2017), –Design and development of eco-friendly nebuliser face mask‖, Publication by Woodhead Publishing India Pvt. Ltd. pp. 35-40

Bhardwaj, Vertica & Fairhurst, Ann. (2010). Fast fashion: Response to changes in the fashion industry. The International Review of Retail. Distribution and Consumer Research. 165-173. 10.1080/09593960903498300

Birtwistle, G., & Moore, C. M. (2007). Fashion clothing–where does it all end up?. *International Journal of Retail & Distribution Management*

Britannica, T. Editors of Encyclopaedia (2014, April 14). *weaving*. *Encyclopedia Britannica*. https://www.britannica.com/technology/weaving.

Colussy ,M.K and Greenberg ,S ,(2007) , –Rendering Fashion Fabric and Prints‖ , Pearson Education , p.141.

Davis ,J,. (2001) , –Fashion-Introduction ,Lifestyle ,Communication ,‖Abhishek Publication ,pp 84, 85,

Dhanabhakyam, M (2007), –Indian textile industry – an overview‖, Publication on fiber2fashion.

Gorden ,M.M. (2002) –The Ultimate Sewing Book‖ ,Colin‘s and Brown Publication ,P.140

Hwang, C. L., & Masud, A. S. M. (2012). Multiple objective decision making—methods and applications: a state-of-the-art survey (Vol. 164). Springer Science & Business Media.

Jacob ,M .(,2009) –Principles and Elements of Design and their Application in Costume Designing –, The India textile Journal , vol no;2 P. 168

Jacob ,m,(1996) ,— Publication and Element of Designing and their Application in costume Designing ,The Indian Textile Jounal ,vol,no2 p, 168

Juanga-Labayen, J.P, Labayen, I, V., Yuan, Q.A., (2022), –Review on Textile Recycling, Practices and challenges‖, Journal of Textile , 2, pp. 174, 188

Kelly, G., Garland, J., Bacall, L., & Turner, L. (2018). Oscars for The Bad and the Beautiful (1952) and I‘ll Cry Tomorrow (1955) and was nominated for The Great Caruso (1951), The Merry Widow (1952), Dream Wife (1953), Executive Suite (1954), Interrupted Melody (1955), The Power and the Prize (1956), The Gazebo (1959), and

Mister Buddwing (1966). In addition to previously mentioned stars, she designed for Ava Gardner, Esther Williams, Cyd Charisse. Hollywood Heroines: The Most Influential Women in Film History, 83.

Klepp, Ingun & Storm-Mathisen, Ardis. (2005). Reading Fashion as Age: Teenage Girls' and Grown Women's Accounts of Clothing as Body and Social Status. Fashion Theory: *The Journal of Dress, Body & Culture*. 9. 323-342. 10.2752/136270405778051329.

Lamoure, R., Busto, L., Novo, F., Sinnema, G., & Leal, M. M. (2014). ―Design and Verification of Critical Pressurised Windows for Manned Spaceflight‖. In *13th European Conference on Spacecraft Structures, Materials & Environmental Testing* (Vol. 727, p. 20).

Ma, Z., Zhang, P., & Zhu, J. (2019). Investigation of the classification and properties of three-dimensional textile fabrics. *Journal of Engineered Fibers and Fabrics*. https://doi.org/10.1177/1558925019889960

Mahadevan , M .G. (2008) ―Txtile Colouring‖, Abhishek Publication. P. 260,

Meller,S. and Elffers ,(2002) , ―Textile Design‖ , Thames and Hudson Publication ,p,245

Mishra, Shruti & Das Mohapatra, Arka. (2021). HANDLOOM IN INDIA: AN OVERVIEW. Strad Research. 7. 10.37896/sr7.8/016.

Narang ,M.,(2006) ―Fashion Technology Handloom , asian Pacific Businesn , press INC, p,105

Neelima , (2009) ―Fashion and Textile Design‖ Publication . sonali .P.P. 279

Nidhikala and et.al. (2008). Existing Designd Features in upper and Lower Garments trends ,Textile vol.7,p.41

Patil ,L.A. et.al. (2000) ―Garments Decoration‖ –A Study ,the textile industry and trade Journal ,vol no; 3-4 , P.P. 38, 107

Sivakumar , N, Mohamed ashik. s ,thirumaran and Parabhakumar k (2002) ―Analysis of Recycling west into garment and salas Promotion methods of of garment Industries‖. Journal of compliance engineerivg.vol.11.(2) pp.20,22,21.

Sodhia ,M ,(2004) ―Design Studies‖Kalyani Publication p.58.

Sumathi ,G .J, (2002) ―Element of Fashion and Apparel New Age International , pvt .Ltd Publication ,p. 31

Suryavanshi, Anil & Kambale, Prof. (2015). A STUDY ON GROWTH OF DECENTRALIZED POWERLOOM SECTOR IN INDIA. IJBMSS. V. 98-103.

Swati, Patali, (2020), ―Power loom cluster in India‖, Textile value chain published.

Utebay, & cay ,(2020), ―Textile wasted: Statu and Perspectives,‖ waste in textile and

Leather Sectors .Intec open

Weisz, J. R., Jensen-Doss, A., & Hawley, K. M. (2006). Evidence-based youth psychotherapies versus usual clinical care: a meta-analysis of direct comparisons. American Psychologist, 61(7), 671.

Wilson ,J., (2001), Handbook of –Textile Design, Principle, process, and practice|, Woodhand publications, p. 37

Xin, B., Hu, J., Baciu, G., & Yu, X. (2009). Investigation on the Classification of Weave Pattern Based on an Active Grid Model. *Textile Research Journal*, *79*(12), 1123–1134. https://doi.org/10.1177/0040517508101459

APPENDIX - A

Survey to Collect Information about Fashionable Girls top from Power loom Scrap Fabrics

A. General Information:

1. Name:
2. Contact number:
3. Age:

☐ Below 18 years

☐ 18-20 years

4. Educational qualification:
5. Location

☐ Urban

☐ Rural

B. Specific Information:

6. Are you Passionate about dressing yourself?

☐ Yes

☐ No

☐ May be

7. Do you know about Scrap Fabric?

☐ Yes

☐ No

8. Are you interest in incorporating Scrap Fabric in your garments?

☐ Yes

☐ No

9. What type of outfit preferred for teenage girls garment?

☐ Ethinic wear

☐ Western wear

10. Type of pattern preferred for scarp fabric garment?

☐ Stripes and Checks

☐ Dots and floral

11. Are you Acceptances of scarp fabric for your garment ?

☐ Yes

☐ No

12. What should be the major criteria for scrap fabric garments?

☐ Appearance

☐ Style

☐ Uniqueness

13. Do you know about which loom more produce more scrap fabrics ?

14. ☐Power-loom

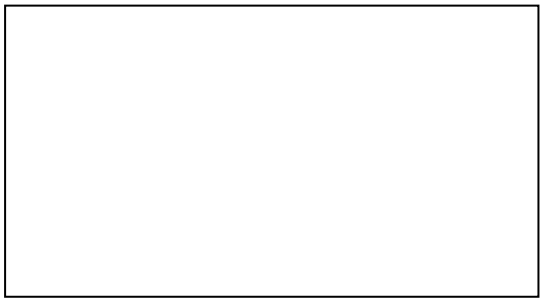
☐ Hand-loom

15. Kindly mention if any particular requirement to be incorporated in scrap fabric garments_____

_

APPENDIX - B

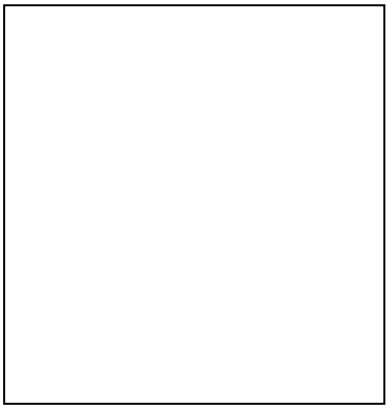
MATERIAL USED FOR MUSLIN PATTERN



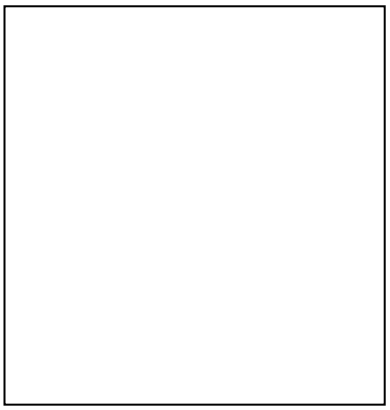
Type	-	100 %preshrunk cotton
Composition	-	100 %
Type	-	Long cloth
Weave	-	Plain

APPENDIX - C

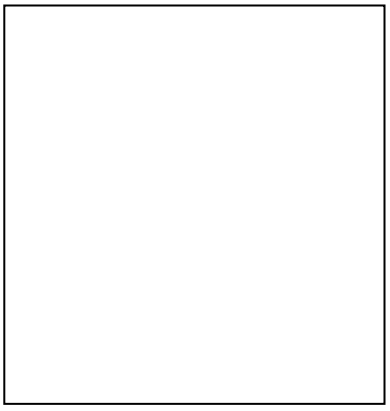
FABRIC SWATCHES USED FOR GARMENTS



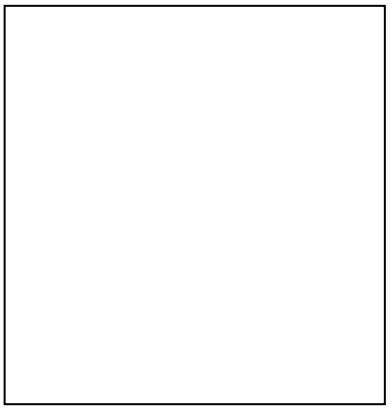
STYLE 4



STYLE 3



STYLE 5



STYLE 6

APPENDIX-D

EVALUATION OF THE MUSLIN GARMENTS BY TEXTILE EXPERTS

S.No	Measurement Aspects	Good	Satisfactory	Not Satisfactory
A	**<u>Top</u>** 1. Chest Circumference 2. Waist Circumference 3. Hip Circumference 4. Front neck depth 5. Back neck depth 6. Shoulder width 7. Shoulder to knee **<u>Sleeve</u>** 1. Armscye depth 2. Upper arm circumference 3. Elbow Sleeve length 4. Elbow circumference			

APPENDIX-E

EVALUATION OF THE FINAL GARMENTS BY EXPERTS

Garment code	Design (In percentage)			Ease to wear (In percentage)			Fitness (In percentage)			Appearance (In percentage)			Expression of Fabric Combination (In percentage)			Texture (In percentage)		
	GOOD	FAIR	POOR	GOOD	FAIR	POOR	GOOD	FAIR	POOR	GOOD	FAIR	POOR	GOOD	FAIR	POOR	GOOD	FAIR	POOR
Style 1																		
Style 2																		
Style 3																		
Style 4																		
Style 5																		
Style 6																		