

Simulation of the textile design of Arabic shemagh using the decorative textile weaves structure

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1. Introduction

The study of the theories of fabric construction contributes to the production of the creative thought of the textile designer, depending on the extent of his understanding of these structural studies and determine the method of fabric construction of the cloth with sufficient accuracy and achieve success in incorporating the resulting cloth aesthetic effects according to the aesthetic appearance and functional performance

The study of textile structures is a developed science. This development is based on the introduction of new methods and ideas on how to trade and use textile structures, such as the integration of some basic textile compositions with each other for new textile effects and the use of decorative methods for ordinary melodies to obtain different inscriptions that look like Jacquard designs While they are derived mainly from simple structures, which can be implemented on the Dobby looms.

There is a relationship between the arrangement of the colors of the wraps and wefts and the textile compositions to obtain wonderful textile and color effects, provided that the appropriate texture is chosen and a system of color arrangement is arranged in different degrees in both the wraps and wefts, So that all these elements are compatible with the purpose of end-use of textiles.

The Arabic Shemagh is considered one of the hallmarks of Arab fashion culture. The designers put design lines that match the fashion lines. Modern technology contributes to the enrichment of aesthetic and artistic values in textile design through textile design programs that enable the designer to carry out applied experiments directly on the computer, and identification of executive specifications, applied methods and the implementation of the executive drawings on the square paper, and draw the system of contact and compression ligament, and the calculation of threads and costs. The focus in the process of development and creativity of the design of textile using the computer with modern innovations as an important means to adapt the various textile data

2- The problem of research and its questions:

Saudi standards (SASO 557/2004) and Gulf Standard (GS277 / 2004) have set the technical requirements and standards for the design of woven Arab shemagh, and to be free from defects specified in the specification, which affect the appearance of the design and the consumption age of the fabric

The problem of research is summerized in the following questions:

2.1 What are the defects that affect the appearance of the design and the consumption age of the Arabic Shemagh fabric.

2.2 What are the structural data for the fabrical design of the Arabic Shemagh.

2.3 Is it possible to simulate the fabric design of the Arabic Shemagh to provide a textile product with new construction data with high quality.

3- Research Objectives:

3.1 Characterization of the defects that affect the appearance of the Arab Shammag design and its consumption like.

3.2 An analytical study of the structural data of the textile design of the Arab Shemagh

3-3 Design of the fabric of Shemagh with new structural data that mimics the structural data of the design of the fabric of Arabic Shemagh, and improve its quality.

4- Research hypotheses:

The possibility of taking new methods and ideas from the data of building the textile structures, and making use of them in the development of new designs using decorative fabric effects, which mimics the fabric design of the Arabic Shemagh and improves its quality.

5- Research Methodology:

This research is followed by the analytical descriptive method for each of the defects that affect the appearance of the Arab Shemagh design and its consumption age , and the structural data of the textile design, in addition to the applied study of the role of the computer in employing these elements and obtaining the best textile image to provide the best final, functional and technical textile product.

6. Research Sample:

The study included the analysis of structural data and the identification of manufacturing technique and the defects that appear on the surface of the fabric. Due to the similarity of the structural data of the Shemagh tissue, the analysis was limited to (4) samples.

7. Research tools:

Field Visits - Personal Interview - Computer - Textile Design Program (Weave maker9.2.6)

8. Analytical Study:

Defects that affect the appearance of Arab Shemagh design and consumption age were identified.

The structural data were analyzed for (4) samples of Arab Shemagh textile (textile composition - decorative effect - number of wrap and wefts threads / cm - size of wrap and wefts threads / cm – size of the thread of flower and frame – weight of square meter for both of flower and frame area.

9 - Applied Study:

The textile design program (Weave maker 9.2.6) was used to obtain designs with textile effects resulting from:

- The integration of some basic textile structures with each other, and the use of contact decorative methods to obtain different patterns and took the designs code A1-2A-3A-4A-5A-6A-7A

- Set a color arrangement for both the wraps and wefts and take the designs Code B1-2B-3B-4B-5B-6B-7B

- Using the extra weft method and taking the designs Code C1-2C-3C-4C-5C-6C-7C

10-Search Results:

- The analytical study showed that the surface of the fabric of the Arabic Shemagh is affected by the defects caused by the processes of the weaving with shuttle looms which based on the appearance of the inscription in the style of excess wraps, where the defects appear clear in the flower and the frame , including the rapid cutting of the thread of Venus from the surface of the woven easily, errors in design
- Analysis of the structural data of the Arab Shemagh tissue samples (textile composition - decorative effect - number of wrap and wefts threads / cm - size of wrap and wefts threads / cm – size of the thread of flower and frame – weight of square meter for both flower and frame area) helped in Guidance and experimental simulation for designs with decorative units and color spaces that give aesthetic and functional effects to the Shemagh tissue
- Some basic textile compositions have been integrated with each other, and decorative contact methods have been used to obtain different inscriptions based on the design system (contact system - stirring system)
- A color arrangement has been made for each of the threads of the wraps and wefts by choosing the appropriate fabric composition, and give fabric and color effects simulate Shemagh textile design.
- The extra weft method, which is based on showing the excess weft on the surface of the fabric, is used in the desired inscription areas, so that it is combed in the back of the fabric with the dropping of signs that are fitted with a decorative system to shorten the length of the long layers in the back of the fabric, to avoid grapping those excess strings if they clashed with any solid part.
- The gradual increase in the numerical density of the units in the unit of measurement was found to have an effect on the thickness of the fabric, thus affecting the clarity of the fine details, where it was possible to highlight certain places in the design and thus achieve the third dimension in design.
- By increasing the number of handles in the unit of measurement, the strings of various thickness sizes were used, resulting designs with more precise and clear details decorations.
- When depending on the simulation of the Shemagh decorative textile compositions instead of the method of excess wraps, the thickness of the thread of the weft of the ground was increased to compensate the missing weight of the square meter and thus maintain the stability of the texture of the Shemagh fabric,
- When depending on the emulation of the Shemagh using the extra weft method, the thickness of the size of ground weft threads was reduced and increasing thickness of the size of the excess weft and its density / cm to show the decoration and reduce the weight of the square meter.
- Weighing the weight of the wraps and wefts threads in the woven width, and thus reducing the weight of the square meters of the simulated designs of the Arabic Shemagh,

- When comparing the weight per square meter of the analyzed samples of Shemagh by the weight of the square meter of the proposed design samples, it was found that the weight of the square meter was underestimated for all the proposed samples.

11- Recommendations :

- Focus on textile design development and innovation using the versatility of computer aid application is a powerful tool to utilize the different textile variables.
- There is a need for collaboration between research centers and the textile industry to continue development and find practical solutions for technical problems.

References:

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