Using Marvelous Designer Software to Compare Some Methods of Constructing Digital Pattern for Women's Trousers

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Abstract:

The tremendous scientific and technological progress in using computers to prepare patterns is no longer limited to receiving manually prepared patterns and storing them, grading them, interlocking them, or modifying them to suit changes in fashion, but rather trying to benefit from three-dimensional programs and the tools they contain to draw and develop patterns, simulate them, and measure their fitting on dress-form with less time, effort and cost compared to the traditional method.

Constructing the basic pattern of trousers is not an easy matter, so special attention must be given while evaluating its level of fit, given that it is unique from other patterns in some measurements, including crotch length. No one can determine the true level of crotch fit and what follows from the presence or absence of tension in the knee and thigh area. Except for the person himself who is wearing the trousers. In addition, assessing the level of fitting in these areas of the body is a very sensitive matter, different during movement than during stop. The Marvelous Designer12 program is one of the most important and famous 3D design programs and has many features, including fitting maps to measure the clothes fitting. With the possibility of measuring the fit during the mannequin movement and stop, from here came the idea of the research, which is to use the Marvelous Designer12 program to compare some methods of Constructing a digital pattern of women's trousers and measure their fit and suitability to the Egyptian body.

Research problem: In light of the above, the research problem can be formulated in the following questions: 1- What are the similarities and differences between the four methods for digital pattern of women's trousers in terms of the structural form of the pattern? 2- Which of the four patterns for the women's trousers is best in fitting on the mannequin while the mannequin is moving and stop?

Research aims: This research aims to: 1- Shedding light on new methods of construct the women's trousers pattern. 2- Identify the similarities and differences between the four patterns (Aldrich - Burgo - Bunka - Donnanno). 3- Finding the best method of construct the women's trousers pattern in terms of fitting on the Egyptian body.

Research importance: The importance of the research lies in: 1- Achieving sustainability by providing the necessary tools and materials to compare pattern methods with the traditional method. 2- The research results may contribute to updating and developing the content of clothing and textile courses in general and pattern constructing courses in particular. 3- Raising the level of quality of the clothing product by following the method of pattern constructing that achieves the fitting on the Egyptian body. 4- Keeping pace with continuous development in the pattern preparation stage and benefiting from it in the industrial and educational fields.

Research hypotheses: 1- There are statistically significant differences between the four women's trousers pattern in terms of the degree of fitting on the mannequin from the front. 2- There are statistically significant differences between the four women's trousers pattern in terms of the degree of fitting on the mannequin from the side. 3- There are statistically significant differences between the four women's trousers pattern in terms of the degree of fitting on the mannequin from the back. 4- There are statistically significant differences between the four women's trousers pattern in terms of the degree of fitting on the mannequin from the evaluation axes as a whole.

Research Methodology: - The descriptive analytical approach: through studying and analyzing the four methods (Winifred Aldrich - Fernando Burgo - Bunka - Antonio Donnanno) of the women's trousers pattern. - The semi-experimental approach: by pattern constructing of women's trousers using the four methods and simulating them on the Marvelous Designer12 program, then measuring the degree of fitting and conformity of each method on the mannequin during movement and stop.

Results: The results of the research revealed the superiority of the Bunka method in terms of fitting and conformity to the Egyptian body (size 46) during movement and stop, followed by the Aldrich method, then Burgo, then the Donnano method. It was shown through the stress map that the Bunka pattern achieved a high degree of comfort in the trouser corotch and in The thigh area from the front, back and side compared to the other three methods; However, it is faulted that the waist line of the pattern exceeds the rotation of the waist of the mannequin by 1 cm, which led to the waist line of the Bunka pattern not matching the waist line of the mannequin, resulting in the presence of stress in the waist area. Therefore, it is recommended to use the Bunka method to construct women's trousers pattern in the industrial and academic fields, taking into account the deletion of the amount of relief in the waist line, so that the amount of the waist in the pattern is equal to the rotation of the waist to achieve complete fitting.

Keywords:

Digitizing, Digital Pattern, 3D Programs, Fitting Maps, Women's Trousers Blocks

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