

The effect of deferent integration method on the textile plain 1/1 & honeycomb weaves on the integrated weave Aesthetic properties

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Abstract: The research aims to conduct experimental study to demonstrate the integration of honeycomb with plain 1/1 weaves in different ways and its effect on the properties of the final product. **The following variables has been used:** Plain weave 1/1 with honeycomb weave through warp by 1:1; Plain weave 1/1 with honeycomb weave through weft by 1:1;- Integrate by Repeat with weft extrusive movement; Integrate with the weft reverse movement; – integrate by 1:1 through warp and weft (with extrusive Repetition to the weft movement of the second repetition with reverse the plain 1/1 weave in the second repetition); Integrate 1:1 through weft and 1:1 through warp with reverse repetition of weft movement with exchange the plain 1/1 weave in second repetition. **The Study concluded the following results:** The best integration methods is integrate by 1:1 through weft and by 1:1 through warp with extrusive Repetition to the weft movement With reverse the plain 1/1 weave in the second repetition, followed by integrate by 1:1 through weft and by 1:1 through warp with extrusive Repetition to the weft movement. The lowest integration method is integrate plain 1/1 weave with honeycomb weave through warp.

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Key words: Textile weaves – integrations method – plain weave – honeycomb weave.

1. Introduction

The textile weaves one of the most important element, which has a direct effect on the cloth, After the Material element, the textile weave is the main element, which build cloth on the loom through weft and warp Dovetail(1) we can devise many textile effects derived primarily from the weaves of certain textile by integrating this weaves with real negative image or with a negative image flipped again. It is also possible to integrate weave with another. (2)

Therefore, this research aims to conduct experimental study to demonstrate the integration of honeycomb with plain 1/1 weaves in different ways and its effect on the properties of the final product.

Weaving process is a process that dovetail longitudinal yarn called warp yarns and cross-called weft with each other at right angles according to the weave, Plain Weave is one of the most important weaves which is the oldest and the most common because of its good properties and is known as the simplest weaves (3,4).

- Plain Weave Produce the simplest form of interlacing but it's used to the greater extend than any other weave and diverse methods of ornamenting and of varying the structure are employed as for example: threads which are deferent in color, material, thickness, or twist are combined; the number of threads split of the reed, or of picks in a given space, is varied in succeeding portions of a cloth. (5)

The most important derivatives

- Plain weaves warp extended

- Plain weaves weft extended.

- Plain weaves weft and warp extended.

▪ Albanama fabrics: with a different number of threads used in both warp and weft in the form of different sizes groups, The dovetail system based on the same plain weaves theory 1/1, each group moving one motion counteract the other group movement. (2)

- Honeycomb weaves

In the cloths produced in honeycomb weaves the threads from ridges and hollows which give a cell-like appearance to the textures. Both the warp and the weft threads float somewhat freely on both sides, which, coupled with the rough structure, renders this class of fabrics readily absorbent of moisture. The weaves are, therefore, very suitable for towels. and they are also used in various forms for bedcovers and quilts, and in combination with other weaves for fancy textures. The weaves of are two class, ordinary honeycombs which give a similar effect on cellular formation on one side of the cloth only.(6)

The Honeycomb weaves is Characterized by vertical floats in warp with horizontal floats in weft and other areas with warp and weft by 1/1 dovetail system.

The presence of these floats in places and not exist in other places are causing the surfaces and superficial resemble honeycomb in fabrics after processing as a result of positional disparate downturns, and therefore shows cloth containing recessed prominent places and other places flat. (2)

Honeycomb weaves divided to:

Normal honeycomb: is a fabric which its cells has a special effect on its both faces.

Brighton Honeycomb: is a fabric which its cells is more Prominent and clearer on one face This is due to the use of thick yarns are inserted or ejected while configuring longitudinal floats surface.

Some methods used to obtain Honeycomb fabric:

- 1- Twill reflection in normal way to create rectangular or square cells.
- 2- The reflection of related joined twill to create rectangular cells.
- 3- The reflection of different composition twill to create square cell. (7)

Using of honeycomb fabrics

Honeycomb fabric used in producing bed linen and covers and some of tables and kitchen towels and used in making wool sweaters. (8)

Textile experiments

The production of a set of samples multiple variables in order to determine the best and most suitable to the subject of the study.

It has been produced with the following specifications

- | | |
|-----------------------|---------|
| Loom Type: Somet | |
| Jacquard set type: | Stauble |
| Produced cloth width: | 100 cm |
| Warp Density: | 24\CM |
| Weft Density\Cm: | 20\cm |
| Warp count: | 24/2 |
| Weft count: 24/2 | |

The implementation of the research hypotheses each separately using the following factors: -

Notes: The Textile Weaves Was Created By Penelope Textile.

3D shapes Created by Nedgraphic.

The textile rule has been implemented using feature of modern textile programs, which can be control in deferent weaves integration methods as follow:-

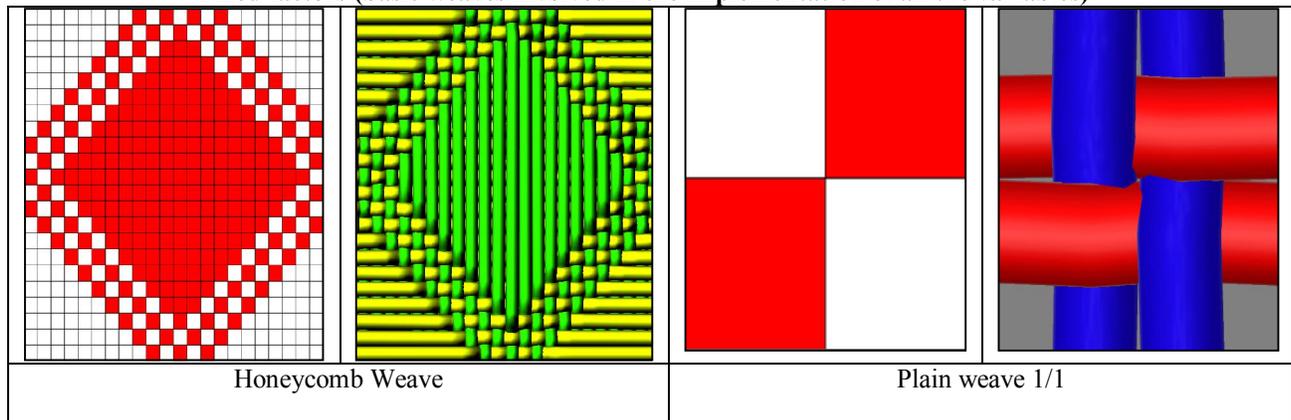
- First warp yarn from the first weave: First, warp yarn from the second weave:
- First 2 warp yarn from the first weave: First 2 warp yarn from the second weave:

The plain weave 1/1 has been used as the main pattern in weaves integration

Table (2-1) Significance for textile Weaves

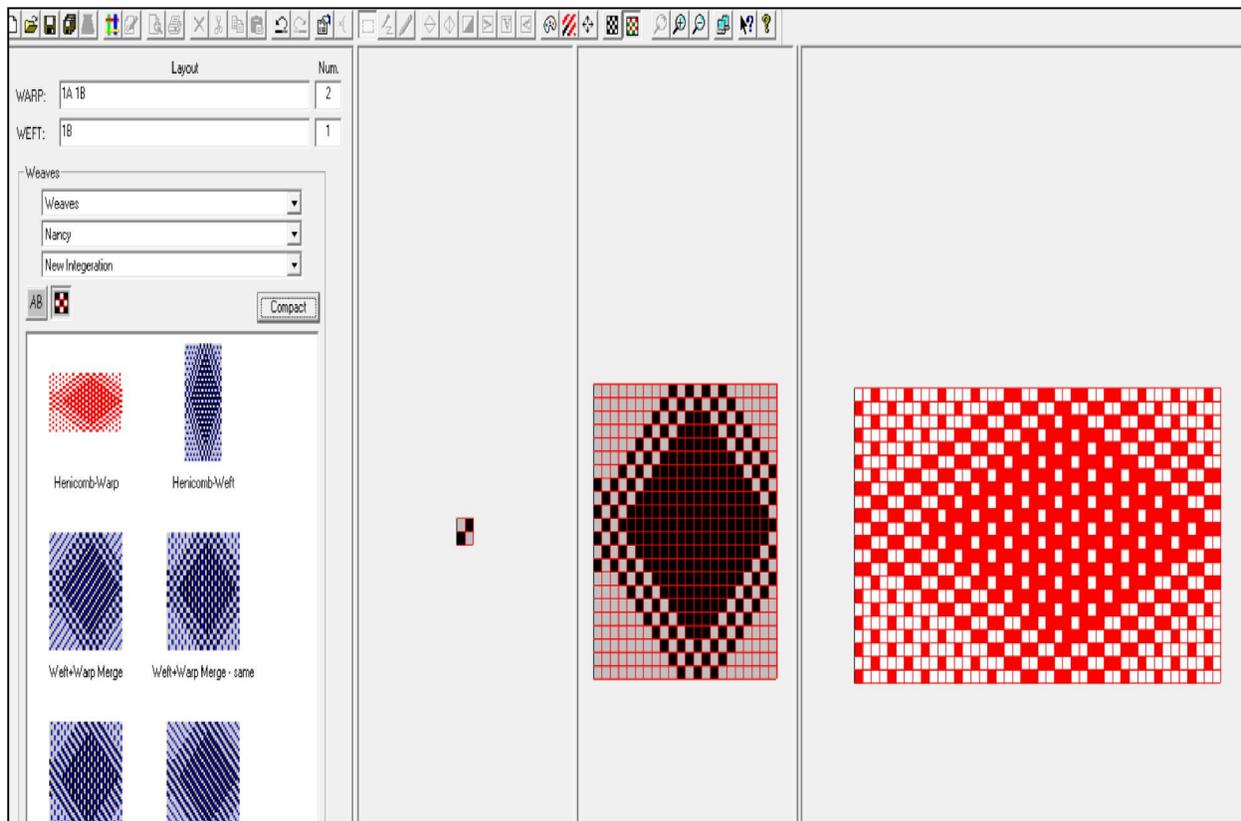
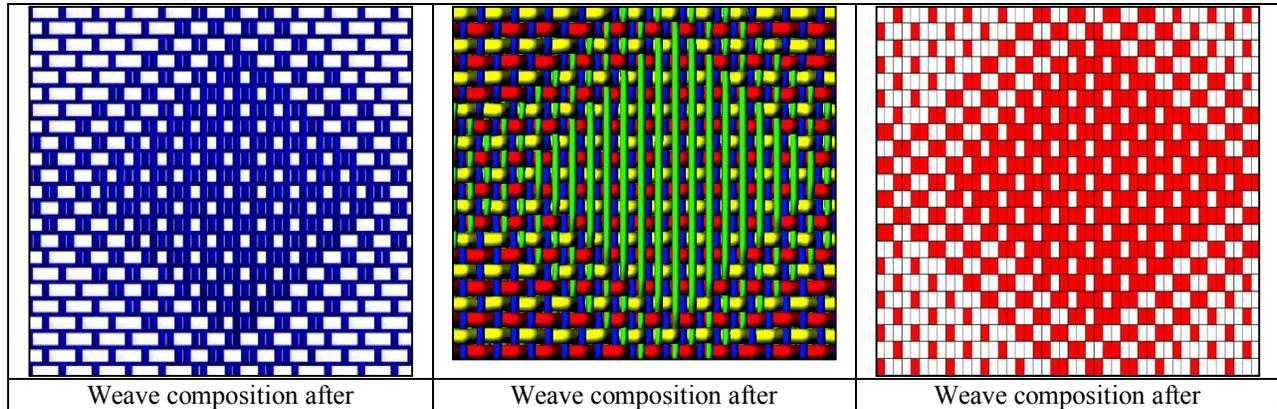
Significance	Sign
Warp sign of the plain weave 1/1	
Weft sign of the plain weave 1/1	
Warp sign of the integrated weave	
Weft sign of the integrated weave	

Fixed factors (basic weaves involved in the implementation of all the variables)

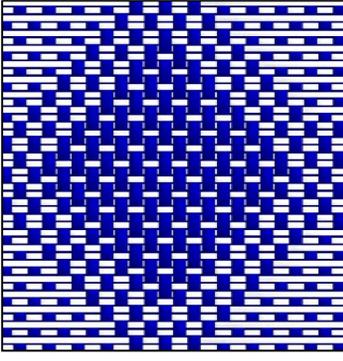
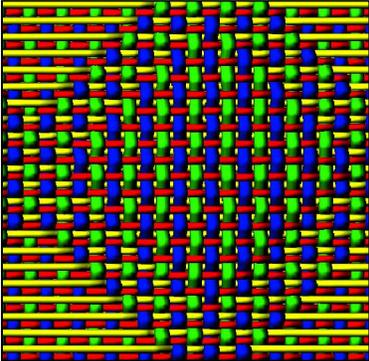
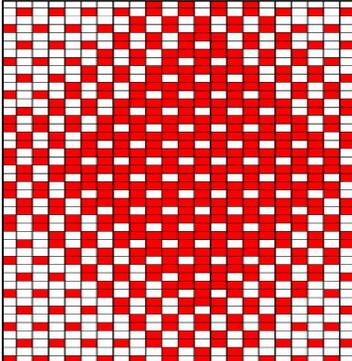


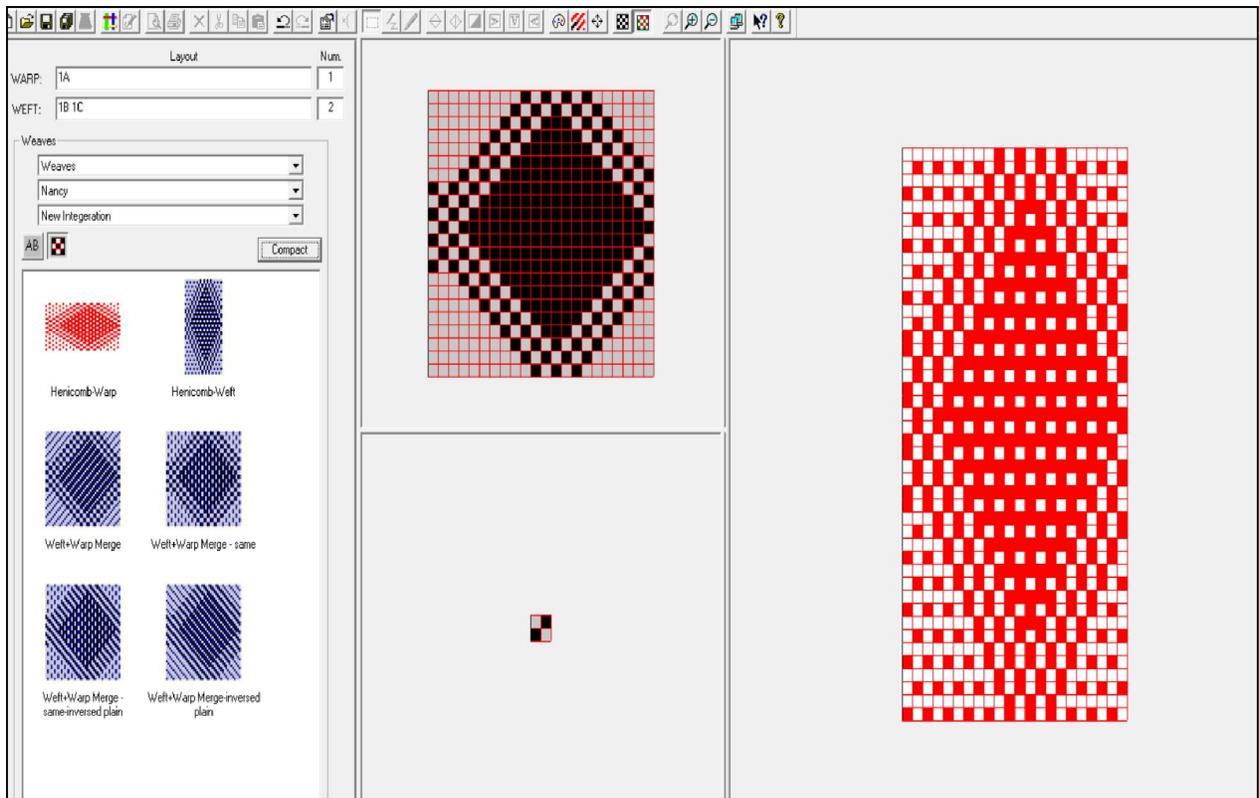
Research Variables

1 - Plain weave 1/1 with honeycomb weave through warp by 1:1.

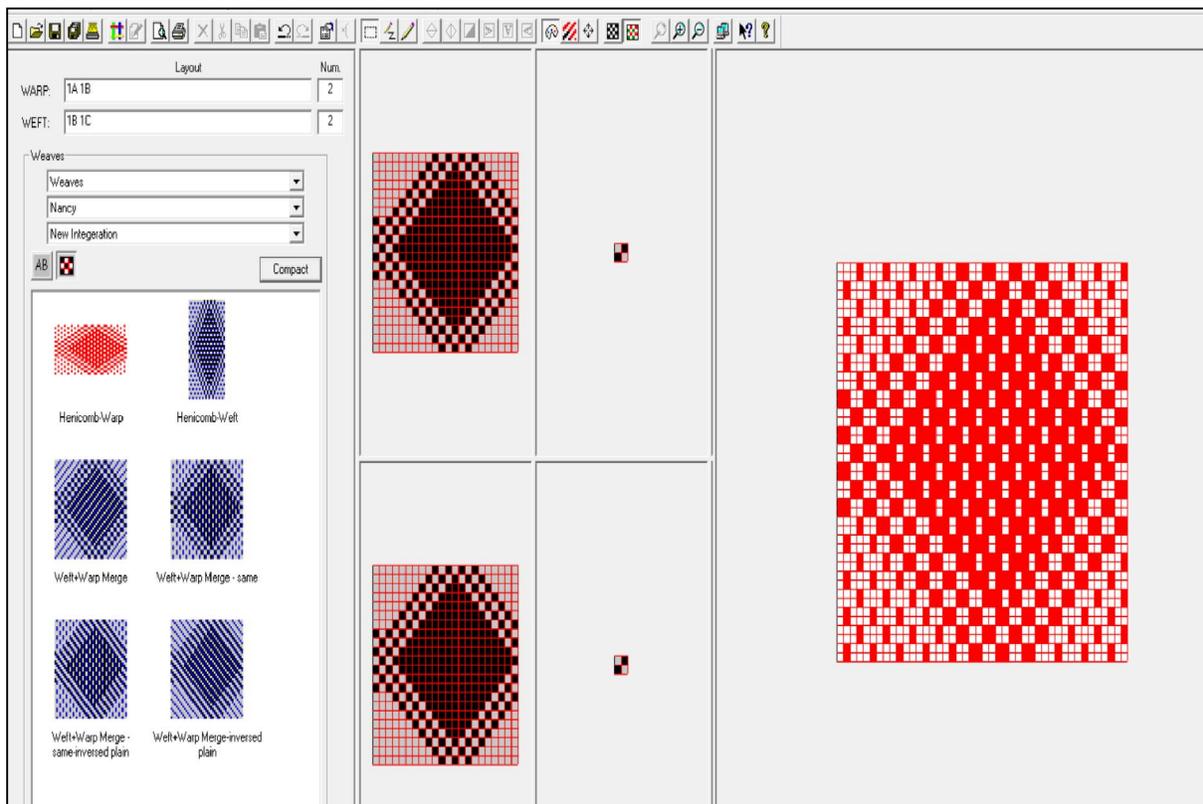
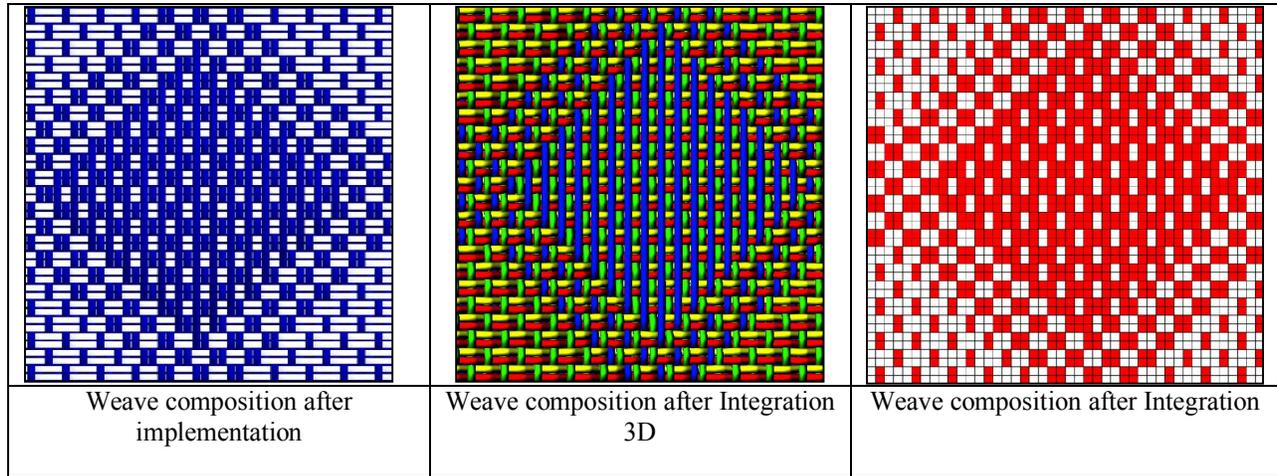


2 - Plain weave 1/1 with honeycomb weave through weft by 1:1.

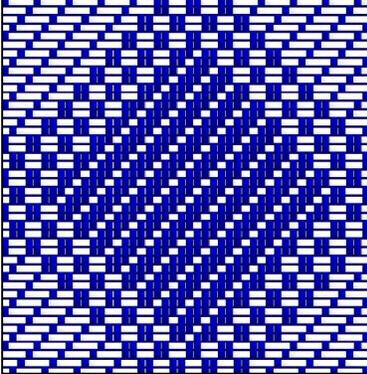
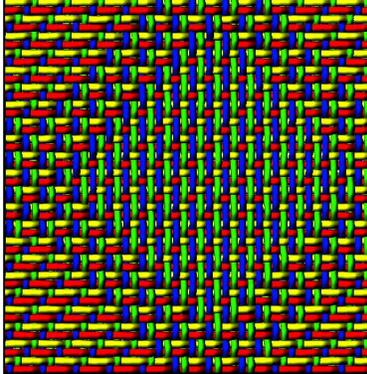
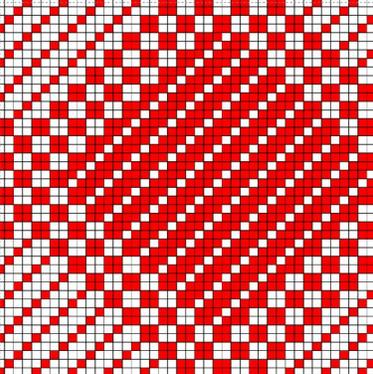
		
<p>Weave composition after implementation</p>	<p>Weave composition after Integration 3D</p>	<p>Weave composition after Integration</p>

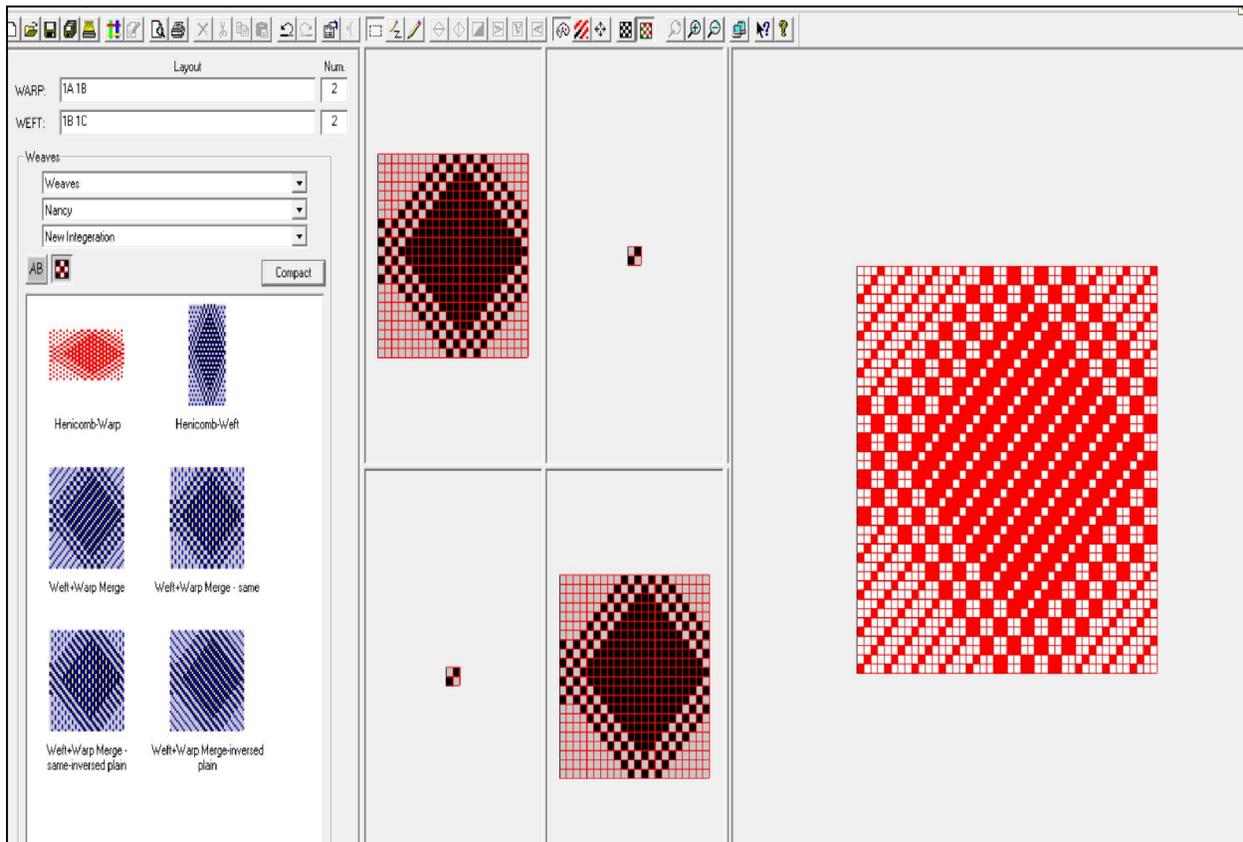


3 - The integration 1:1 by weft and 1:1 by warp with Extrusive repetition of weft movement. If the plain weave 1/1 is symbolized by, the symbol (A) and honeycomb weave symbol (b). Then the integration will be as (AA: BB).



4 - The integration 1:1 by weft and 1:1 by warp with reversed repetition of weft movement. If the plain weave 1/1 is symbolized by, the symbol (A) and honeycomb weave symbol (b). Then the integration will be as (BA: AB).

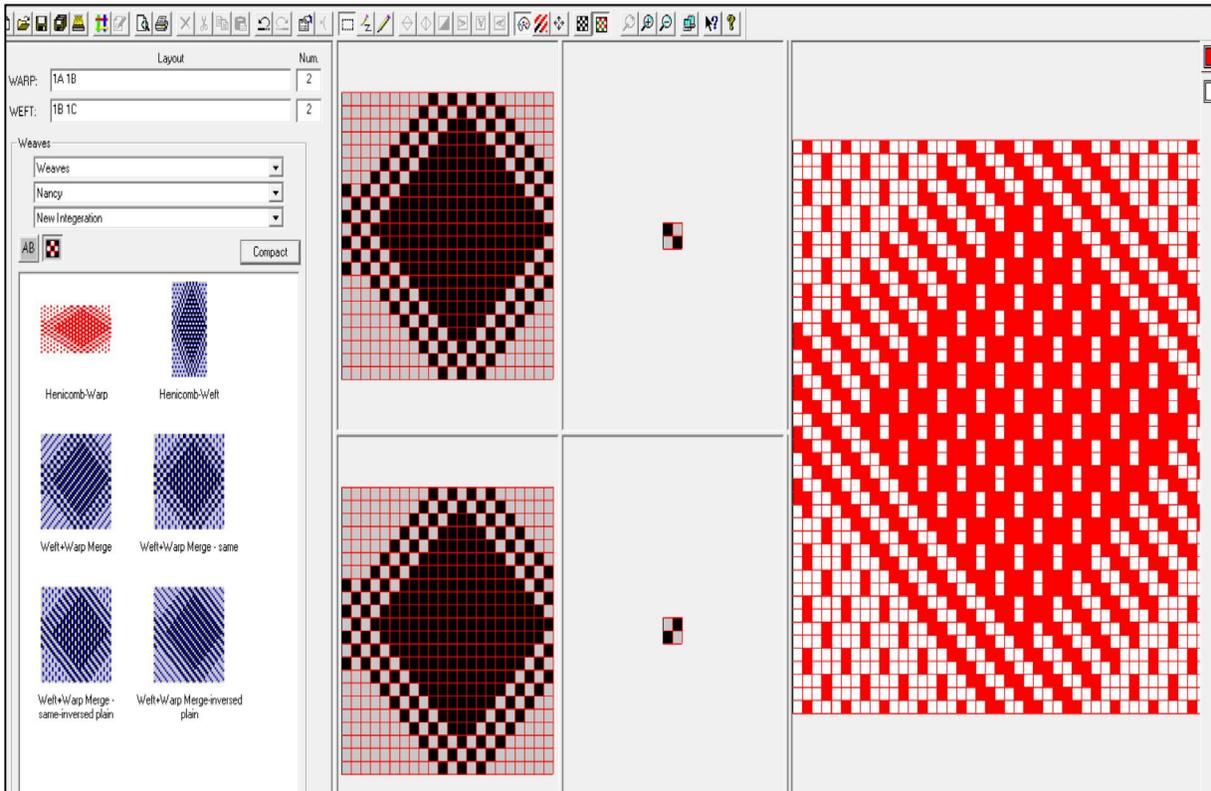
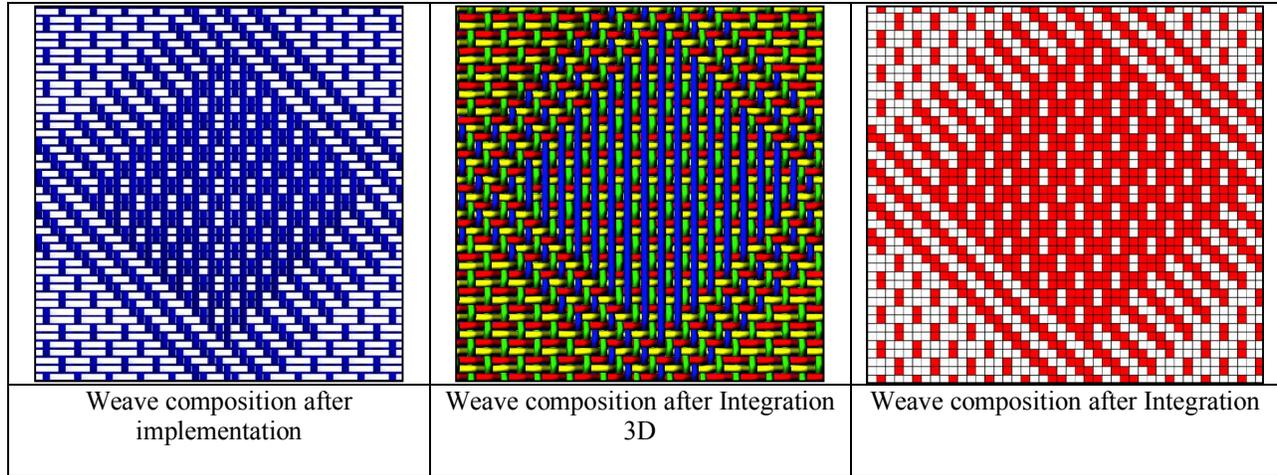
		
<p>Weave composition after implementation</p>	<p>Weave composition after Integration 3D</p>	<p>Weave composition after Integration</p>



5 - The integration 1:1 by weft and 1:1 by warp with Extrusive repetition of weft movement and reverse the plain weave 1/1 in the second repetition.

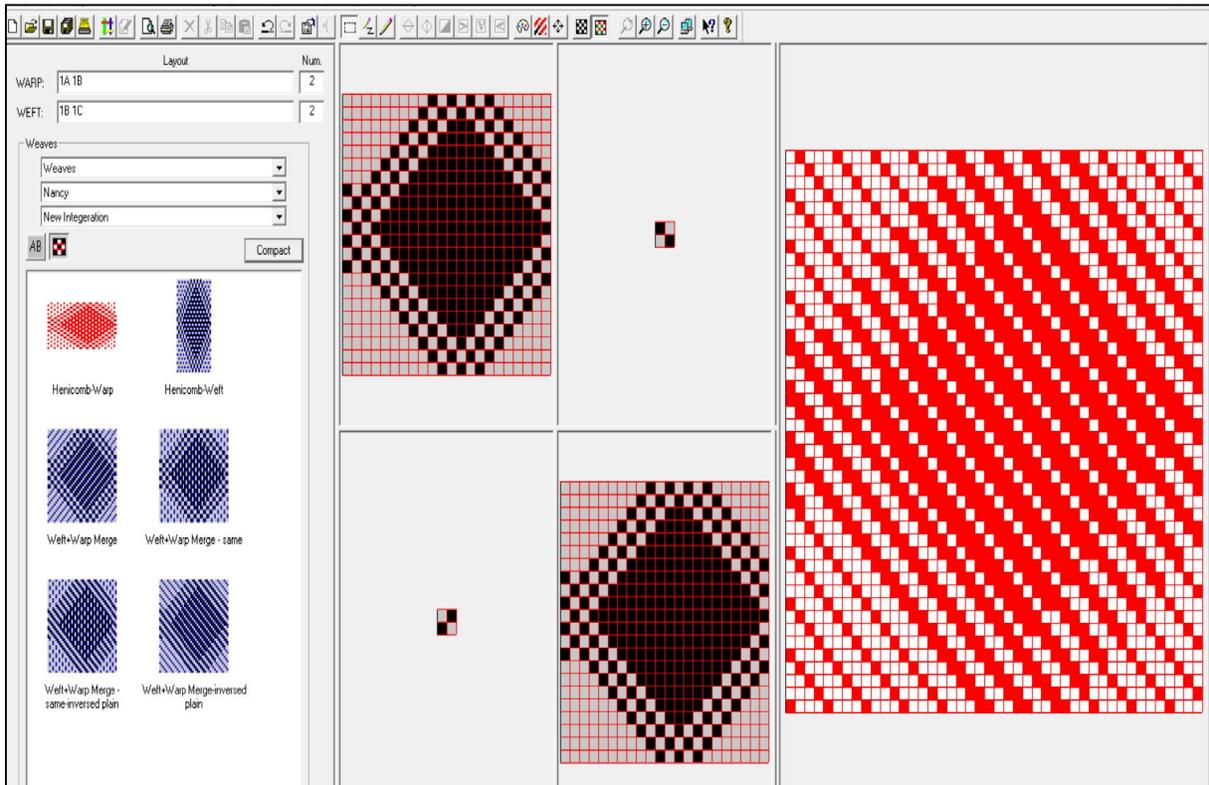
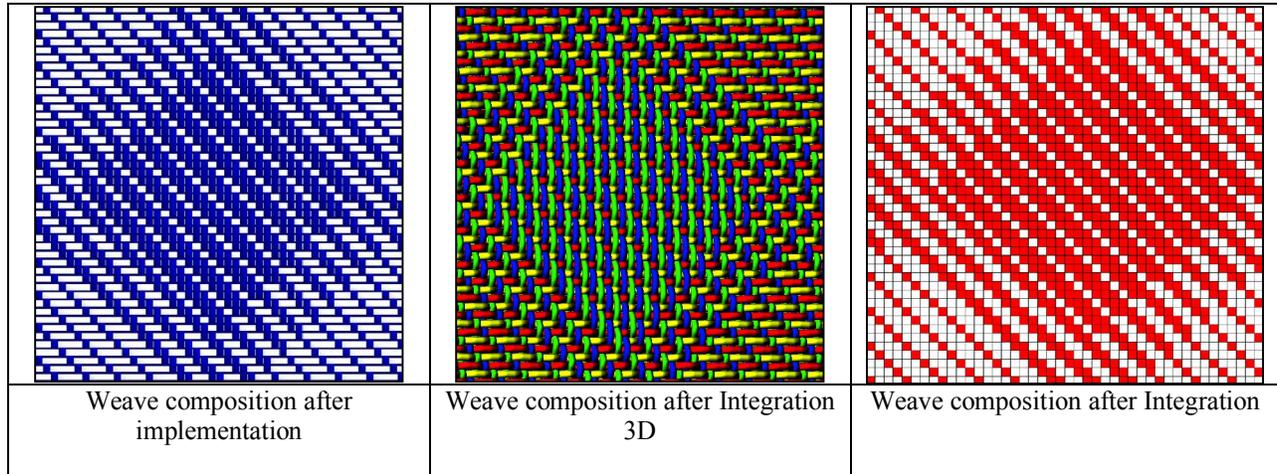
If the plain weave 1/1 is symbolized by, the symbol (A) and honeycomb weave symbol (b).

Then the integration will be as (AA: BB).



6 - The integration 1:1 by weft and 1:1 by warp with reversed repetition of weft movement and exchange the plain weave in the second repetition.

If the plain weave 1/1 is symbolized by, the symbol (A) and honeycomb weave symbol (b). Then the integration will be as (BA: AB).



Arbitration research variables form

Serial	Phrase	Appropriate	Some extent	Inappropriate
1	accuracy of textile weaves			
2	durability of the used material			
3	appropriateness of Textile weave to be used as a clothing product			
4	Possibility of employment the innovative Textile product for more than the purpose			
5	To what extent was the best use of the possibilities of modern textile programs at integration			
6	diversity of textile weaves led to the development of new textile materials			

3. Results and discussion

The impact of differing compositions incorporating aesthetic properties on textile fabrics methods: -

And through the evaluation of the results of the questionnaires and to find the mean scores for each variable separately and also the relationship between the percentage of arbitrators and their opinions for the terms of aesthetic and to be able to statistical analysis it was necessary to convert the descriptive estimated numerical estimates using a weighted arithmetic mean of each assessment and fined separately:

- Estimate the descriptive appropriate given him three degrees.
- Appreciation appropriate descriptive somewhat given him two degrees.
- Estimate the descriptive inappropriate given him one degree.

• Test Percentage:

It is used to indicate the percentages of the views of the arbitrators in the various elements of each design in terms of being appropriate or not appropriate and it gives us a more complete description of the views of the arbitrators in the designs and are calculated according to the equation:

$$\text{Percentage} = (\text{number of views} / \text{total number of arbitrators}) \times 100$$

• Agreement coefficient:

Gives us a general perception of the views of the arbitrators in different elements and shows how the arbitrators agree on the fact that this item is appropriate or not, and is calculated by the ratio between the divergent views of the arbitrators in the various elements of each axis range from the value of the agreement coefficient between zero and correct one Whenever approached the right one indicates that the arbitrators agreement in their views on this element.



- The effect of textile weaves on the aesthetic properties:

Table frequencies and percentages of the responses of the arbitrators to verify the properties of aesthetic form:

Item	Warp Integration						Weft Integration						Warp + Weft with Extrusive movement						Warp + Weft with Reverse movement						Warp + Weft with Extrusive repetition						Warp + Weft with Reversed repetition					
	appropriate		To some extent		inappropriate		appropriate		To some extent		inappropriate		appropriate		To some extent		inappropriate		appropriate		To some extent		inappropriate		appropriate		To some extent		inappropriate		appropriate		To some extent		inappropriate	
	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%		
1			1	10	9	90	2	20	8	80			3	30	7	70			4	40	6	60			10	100					3	30	7	70		
2					10	100	1	10	9	90					10	100			2	20	8	80			10	100			1	10	9	90				
3					10	100			8	80	2	20			8	80	2	20			10	100			7	70	3	30			8	80	2	20		
4			4	40	6	60			8	80	2	20	1	10	9	90			10	100			8	80	2	20			8	80	2	20				
5					10	100			8	80	2	20			10	100			9	90	1	10	7	70	3	30			8	80	2	20				
6					10	100			8	80	2	20	2	20	8	80			10	100			10	100					8	80	2	20				

The relationship between the number of arbitrators and their views on the integration of the different histological methods compositions.

From Tables and shapes, it is clear that the weave resulting from the integration of the plain weave and honeycomb weave through the warp and weft together with a reverse the textile weave in the repetition (variable No.5) achieved the highest rate of agreement between the arbitrators in each of the first, second and sixth items amounted to 100%, and the fourth item 80% achieved agreement while the third item fifth and 70% agreement with a total average rate of 86.7% agreement.

Followed by the weave results from integrating plain 1/1 and honeycomb weaves through warp and weft with reversed weaves repetition (Variable No.4), achieved the second rate of agreement between the arbitrators in each of the first items amounted to 40% and the latter 20% with a total average rate of 60% agreement.

While it turned out that the Plain weave, 1/1 integrated with honeycomb weave through warp has achieved the lowest rate agreement between the arbitrators.

- Thus clear the views of most of the arbitrators agree on the best methods of integration is the plain weave 1:1 from weft 1: 1 of warp repeat extrusive weft movement.

With a reverse plain weave 1/1 in the second repetition, followed by the integration of 1: 1 from weft 1: 1 with a repeat of the warp proportional to the movement of the weft, while less integration methods shows an agreement between the arbitrators is to integrate the plain weave 1/1 with Honeycomb weave through warp.

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