

Utilizing the Leno Weave Aesthetic Values in Teaching Weaving for Art Education Students

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Abstract:

The aim of the present experimental research was to review some of the methods and formative formulations of the leno weave with all its potentials and aesthetic values that update the stereotype of the woven work to free innovations, adding new formative elements as texture, space, transparency. The present research utilized these methods and formative formulations of the leno weave in teaching weaving as an art achieving diverse artistic values and transcending the spirit of innovation and updating. Ornamental techniques of the leno weave performance were utilized as being implemented on simple frame looms with varied fancy yarns to achieve colorimetric and texture effects of the woven work. Results: The present research presented formative solutions of weave art, using leno weave and a set of proposed structures. Students attempted leno weave on small looms. All warp and weft yarns (either double or single) made leno units of different floats resulting from colorimetric and artistic effects, depending on the artistic vision each student's design. Experimentation produced (17) different woven fabrics that can be utilized in many implementations. These woven fabrics were as far from imitation and simulation as being varied in materials, performance and techniques, resulting in greater artistic values such as space and transparency, texture, in addition to colorimetric values. Conclusions: Recognizing the artistic and aesthetic values and formative potentials of the leno weave and creating new art formulations helping innovation and creativity in the field of weaving art, helping students and those interested in the field of weaving art practice experimentations of new structures and formulations, developing the aesthetics of the woven artwork and students' artistic vision to formulate innovative woven works with the help of fancy yarns, learning about different theories and new trends of weaving art, developing students' aesthetic sense to recognize the principles of the weaving craft and different technical development and providing students with the ability to differentiate between stereotype works in contemporary weaving art.

Keywords:

*Leno Weave
Teaching Weaving
Weaving Art
Looms
Fancy Yarns.*

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Introduction

Weaving is a structural relationship between warp and weft yarns in predetermined syntheses and systems that form ornamented woven surfaces. Dialogue between yarns is the language of weaving expression which stays away from simulation and tradition to set off into the world of formation, achieving artistic values of color, light, space, transparency and showing texture and contrast levels that bring about new weaving forms. Artistic styles used in formative formulations of weaving art vary according to materials, performance and techniques. The aim of the present research was to utilize the aesthetic values of the leno weave to achieve more artistic values as space, transparency and texture, in addition to the colorimetric values.

The present research indicated the effect of leno woven constructions elements on the properties of woven art throughout teaching weaving for students of Art Education. Students produced woven works that were away from imitation and simulation. These woven works are considered intellectual and formative premises in teaching weaving to art education students and to

practitioners of weaving art, as well. They help weaving creativity with a contemporary vision consistent with modern artistic trends and different from stereotypes.

One of the basics of teaching weaving is to identify simple weaving syntheses, which are considered the foundation of weaving works, including plain weave and twill weave. Identifying such syntheses with only drawing and explanation may not enrich artistic performance which can be utilized in the field of art education. Hence, practical implementation of weave synthesis has to be updated to get varied designs. One stage of formative change is introducing ornamental techniques implemented on simple looms, emphasizing the artistic values such as linear effects, transparency and space in a handwork weave.

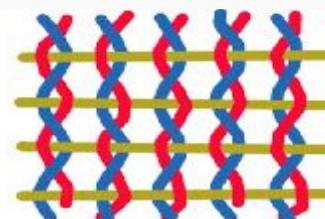


Fig. 1

Leno Weave

leno weaves differ from other structures in that the warp threads of one system do not run parallel or at right angles with the weft threads, but are twisted round. The characteristic feature of these fabrics is the spaces between the threads. (4, 2009, p xvi, 90).

which produce an open net-like structure. The weft threads are firmly held by the crossing warp threads, ensuring a uniform texture. (2, 2004, p220)

Leno weave is a weave in which two warp yarns are twisted around the weft yarns to provide a strong yet sheer fabric. The standard warp yarn is paired with a skeleton or 'doup' yarn; these twisted warp yarns grip tightly to the weft which causes the durability of the fabric. Leno weave produces an open fabric with almost no yarn slippage or misplacement of threads. (1, 2007, p4-7), (6, 2009 p6)

The fabrics of such weaves are used for dress, curtains, decorative fabrics, and mosquito nets. These firm open fabrics are also used for technical purposes, such as for the selvages on the shuttleless looms and for producing the pile yarn, so-called chenille yarn. (5, 2001, p5-9)

Leno weave fabric allows light and air to pass through freely so are used in any area where a sheer, open weave fabric is required that will not bruise (where the threads shift away from their woven uniformity disturbing the beauty of the weave). (10, 2014) If a simple in-and-out flat weave were woven very loosely to achieve the same effect, the threads would have a tendency to this bruising. Leno weaves also called Gauze Weave or Cross Weave are often used for window treatments and for sheer layers for fine clothing. When made with glass fibre or other strong yarns or when permeated with a strengthening compound it can be used as an engineering material in construction, though due to the openness of the fabric if a solid covering is required it is often used in conjunction with other weave styles. (8, 2012, p1-2)

In lenos adjoining warp do not remain parallel when they are interlaced with the weft but are crossed over each other. In the simplest leno one standard end and one crossing end are passed across each other during consecutive picks. Two variations of this structure and cross-section are shown in plan view Figure. (a) and (b). Whenever the warp threads cross over each other, with the weft passing between them, they lock the weft into position and prevent weft movement. Leno weaves are therefore used in very open structures, such as

gauzes, to prevent thread movement and fabric distortion. When the selvedge construction of a fabric does not bind its edge threads into position

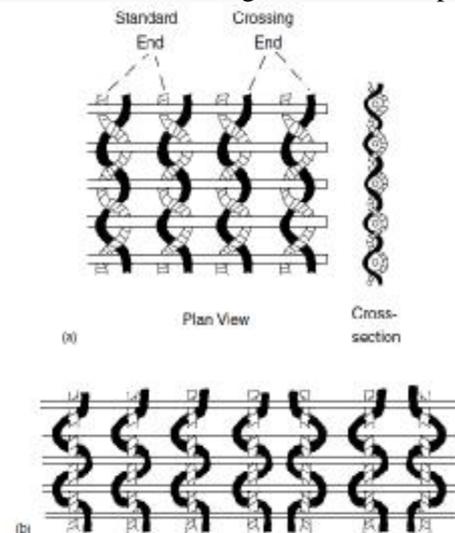


Fig. 2

Leno ends are used to prevent the warp threads at each side of a length of cloth from slipping out of the body of the fabric. They are also used in the body of fabrics when empty dents are left in weaving because the fabrics are to be slit into narrower widths at a later stage of processing. Leno and gauze fabrics may consist of standard and crossing ends only or pairs or multiples of such threads may be introduced according to pattern to obtain the required design. For larger effects standard and crossing ends may also be in pairs or groups of three. Two or more weft threads may be introduced into one shed and (a) Leno with standard and crossing ends of same length (woven from one beam), (b) leno with standard and crossing ends of different length (woven from two beams). Areas of plain fabric may be woven in the weft direction between picks where warp ends are crossed over to give the leno effect. Gauze fabrics used for filtration generally use simple leno weaves. Standard and crossing ends frequently come from separate warp beams. If both the standard and crossing ends are warped on to one beam, the same length of warp is available for both and they will have to do the same amount of bending, that is they will have the same crimp. Such a leno fabric is shown in plan view and cross-section in Fig. (a). If the two series of ends are brought from separate beams the standard ends and the crossing ends can be tensioned differently and their crimp can be adjusted separately. In such a case it is possible for the standard ends to lie straight and the crossing ends to do all the bending. Such a fabric is shown in Fig. (b). This figure also shows that crossing threads can be

moved either from the right to the left or from the left to the right on the same pick and adjoining leno pairs may either cross in the same or opposite

directions. The direction of crossing can affect locking, especially with smooth monofilament yarns. (3, 2000,p73)

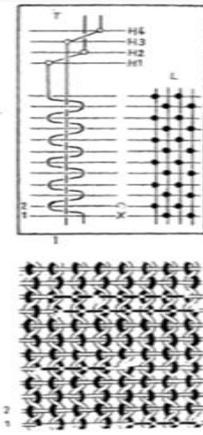


Fig. 3 Leno Weave 1/1

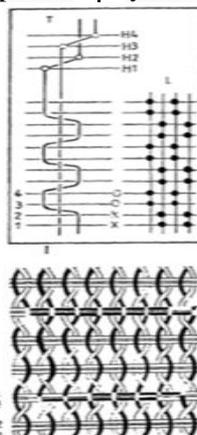


Fig. 4 Leno Weave 2/2
(5, 2001, p70, 71)

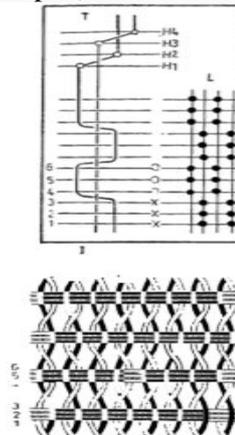


Fig. 5 Leno Weave 3/3



Fig. 6 The geometric visualization of the increased effect of wefts intensity in the measuring unit of leno Weave 1/1

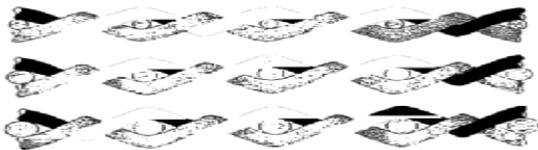


Fig. 7 The geometric visualization of the increased effect of wefts Thickness in the measuring unit of leno Weave 1/1
(5, 2001, p89, 96)

Methods of Leno Weave Hand made

The twist in the warp ends is created by crossing warp ends and holding the cross in place using a flat pick-up stick or weaving sword. A group of warp ends are picked up and twisted around the adjoining set of warp ends, the pick-up stick is sided through the warp ends to hold the twist. After all of the twists have been created, the pick-up stick is turned on its edge to open up a shed. Figure (7). The weft is inserted through this shed, the pick-up stick is removed, and the weave is beaten. The weft locks the twist in place.frame (9, 2014)

Larger groupings of warp ends can also be twisted together as shown in Figure (9) which illustrates twisting pairs of warp ends around each other. The more warp ends twisted around each other, the heavier and more obvious the leno effect becomes. Eventually, warp tension limits the number of warp ends that can be physically

twisted around each other. Relaxing the tension on the warp makes.

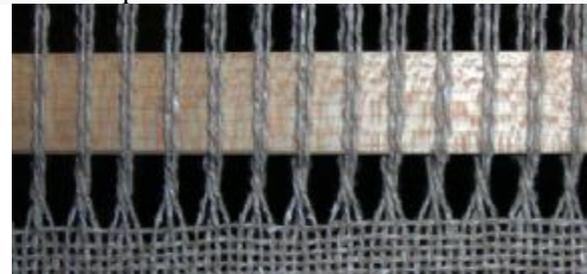


Fig. 7

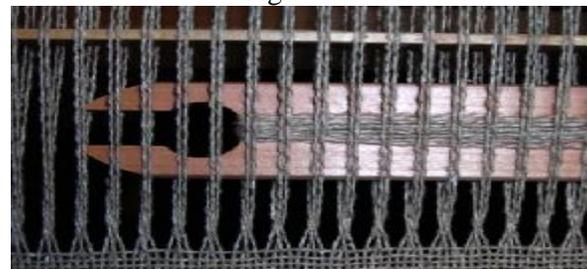


Fig. 8



Fig. 9

it easier to twist the larger groups of ends around each other, but may also make it difficult to maintain an even beat in the cloth. Creating leno with large warp groupings, needs experimentation to find the right balance.(7,2009, p8)

Experimental Work

Materials & Methods

Cotton yarns were used for warp. Yarns of cotton mixed with acrylic, cotton, polyester mixed



with acrylic Figure (10), and fancy yarn were used for weft. Warp and wefts yarn were of different grading colors.



Fig. 10

Weave structures Used with Leno

Plain weave

The plain weave Figure (11) consists of yarns interlaced in an alternating fashion one over and one under every other yarn. The plain weave provides good fabric stability but is generally the least pliable. (6,2009 p5)

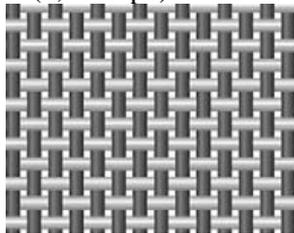


Fig. 11

Basket weave

The basket weave Figure (12) is similar to the plain weave except that two or more warp yarns and two or more filling yarns are alternately interlaced over and under each other.

The basket weave is more pliable, flatter and stronger than the plain weave, but is not as stable. (6,2009 p6)

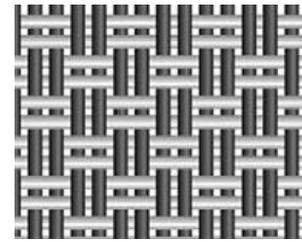


Fig. 12

Satin wave

The four harness satin weave Figure (12) is more pliable than the plain weave and is easier to conform to curved surfaces typical in reinforced plastics. In this weave pattern there is a three-by-one interfacing where a filling yarn floats over three warp yarns and under one. (6,2009 p6)

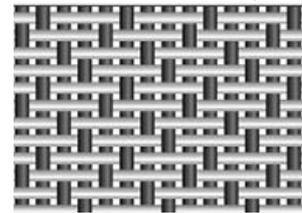


Fig. 13

Results and Discussion:

The present research presented formative solutions of weave art, using leno weave and a set of proposed structures. Students attempted leno weave on small looms. All warp and weft yarns (either double or single) made leno units of different floats resulting from colorimetric and artistic effects, depending on the artistic vision each student's design. Experimentation produced (17) different woven fabrics that can be implemented in many usages.

Woven Fabrics Evaluation

Woven fabrics were submitted to ten professional jurors to evaluate each of them according to the items stated in the following survey:-

Resulting Woven Fabrics Techniques ,Materials and Colors Used



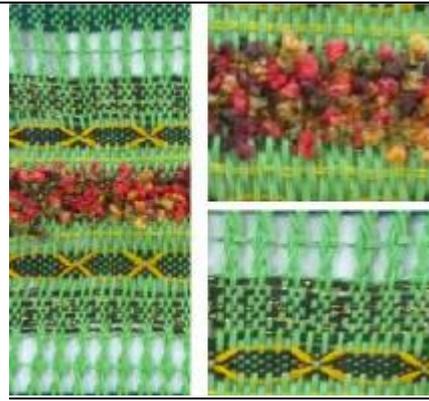
(1)



Warps: 8/2 Charcoal Gray Cotton yarns
Wefts: 20/1 Cotton mixed with Acrylic, 8/1 Cotton, Polyester and Fancy yarn.
Colors used (Silver Gray, Soft Pink , pink ,Flamingo Pink, novelty yarn multi color(Black, yellow ,pink, gray, Duck Egg Blue)



(2)



Warps: 8/2 Cotton Pale green yarns.
 Wefts: 30/2 Cotton, 8/1 Cotton and Fancy yarns
 Colors used (Yellow, Pale green , Forest Green, Hunter Green , Zinnia red, Rouge red, Peach)



(3)



Warps: 8/2 Cotton Soft Pink yarns.
 Wefts: 30/1 Cotton, 8/1 Cotton and Fancy yarns
 Colors used (Deep Lavender , Aqua , Brown Bear)



(4)

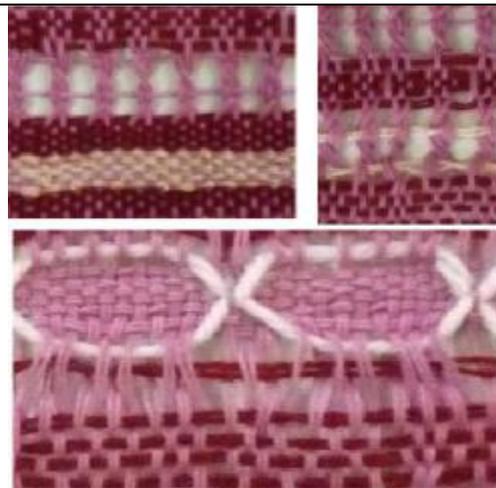


Warps: 8/2 Cotton Italian Plum.
 Wefts: 30/1 Cotton, Cotton mixed with Acrylic
 Cotton mixed with Acrylic and Fancy yarns
 Colors used (Neon Yellow , Cabernet , Slate Blue , Hot Pink, Italian Plum)



(5)

Warps: 8/2 Cotton Candy yarns.
 Wefts: 30/2 Cotton, 8/2 Cotton and Polyester mixed with Acrylic yarns .
 Colors used (Ruby , White , Beige, Cotton Candy).



(6)

Warps: 8/2 Cotton Smoke Blue yarns .
 Wefts: polyester mixed with Acrylic , 8/1cotton and Fancy yarns .
 Colors used (Savona Rose , Goldenrod , Lemon Yellow , Peach , Pistachio)



(7)

Warps: 8/2 Cotton Rose yarns.
 Wefts: 30/2 Cotton, 8/1 Cotton and Polyester mixed with Cotton and Acrylic yarns.
 Colors used (Pink, Burgundy , Blue Hawaii, Dusty Rose)





(8)



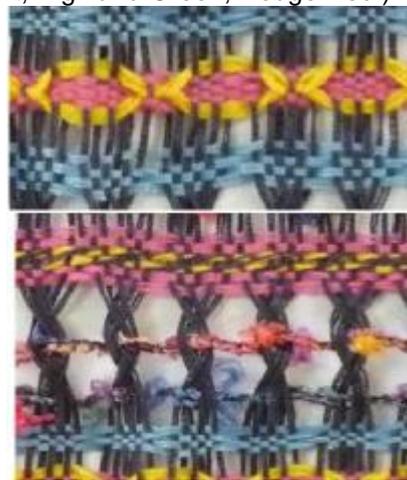
Warps: 8/2 Cotton Van Dyke Brown , White, Orange Sherbert yarns.

Wefts: 8/2 Cotton, Wool and Fancy yarns.

Colors used (Van Dyke Brown , white, Orange Sherbert, Highland Green, Rouge Red)



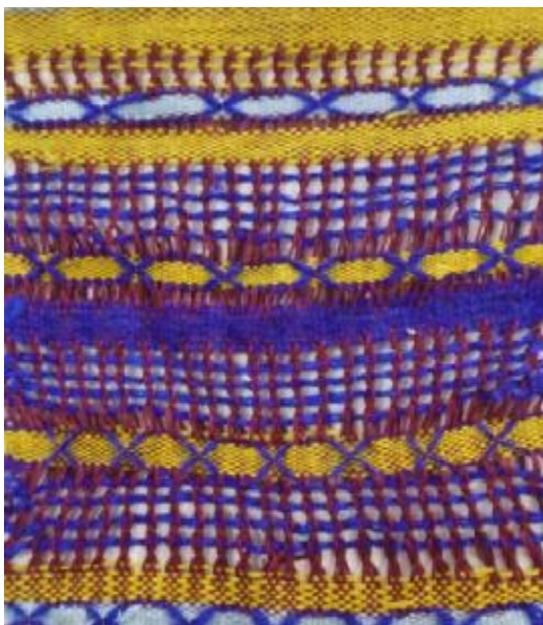
(9)



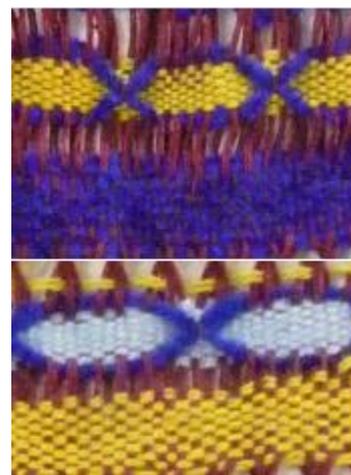
Warps: 8/2 Cotton Eggplant yarns .

Wefts: Polyester mixed with Acrylic , 8/2 Cotton and Fancy yarns.

Colors used (Pink, Yellow , Baby Blue , Eggplant)



(10)



Warps: 8/2 Cotton Burgundy .

Wefts: 30/1 Cotton, 8/2 Cotton and Wool mixed with Polyester yarns.

Colors used (Golden Yellow, Blue, White Burgundy)



(11)



Warps: 8/2 Cotton Dark Chocolate yarns .
Wefts: 15/1 Cotton, Wool and Polyester mixed with Cotton and Acrylic yarns .
Colors used(Dark Chocolate , Beige , Orange)



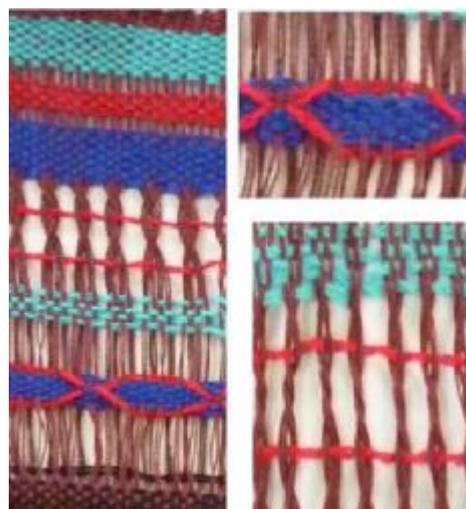
(12)



Warps: 8/2 Cotton White yarns.
Wefts: 30/2 Cotton, 8/1 Cotton and Cotton mixed with Acrylic yarns .
Colors used(Red, Green , Off-White)



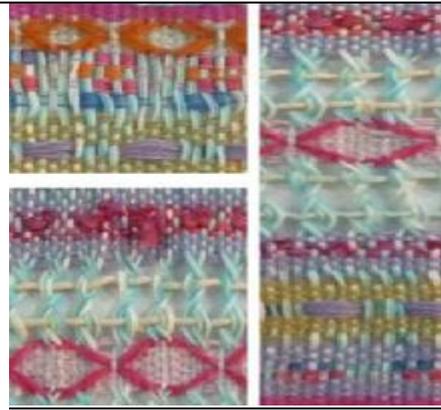
(13)



Warps: 8/2 Cotton Mineral Red yarns.
Wefts: 20/1 Cotton, 8/2 Cotton and Acrylic yarns .
Colors used(Blue, Red , Mineral Red , Blue Anis)



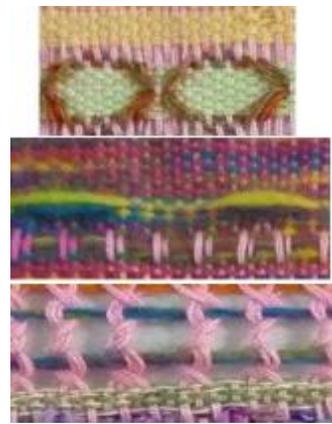
(14)



Warps: 8/2 Cotton Robin Egg Blue & White yarns.
Wefts: 30/2 Cotton, Cotton mixed with , Acrylic and Fancy yarns
Colors used (Orange , Hot Pink , Cerise Fuschia, Light Purple, Cedar Green)



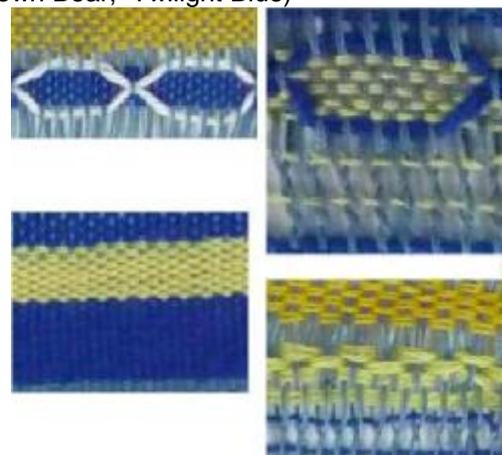
(15)



Warps: 8/2 cotton Soft Pink yarns .
Wefts: 24/1 Cotton, Cotton mixed with Polyester, Wool, Acrylic and Fancy yarns
Colors used (Orange , Cerise , Fuschia, Rose, Light Purple, yellow, Cedar Green baby blue, Brown Bear, Twilight Blue)



(16)



Warps: 8/2 Cotton Marine yarns .
Wefts: 28/2 Cotton, 8/2 Cotton and Acrylic yarns
Colors used (Lemon Yellow, Kentucky Blue , Sunflower , White)



(17)

Warp: 8/2 Cotton Smoke Blue yarns .
 Wefts: 30/2 Cotton, 8/1Cotton, Cotton mixed with Polyester and Acrylic yarns
 Colors used (White, Cotton Soft Pink, Mellow Mauve, Smoke Blue)

Table 1: Woven Fabric No () Survey

No.	Items	Evaluation		
		3	2	1
١	Using leno weave added to the aesthetic and artistic value of weave art.			
٢	Harmony of leno weave with other weave structures used			
٣	Compatibility of leno weaves with material used			
٤	Compatibility of material used			
٥	Rhythm and harmony of colors used			
٦	Unity, cohesion and balance of the woven fabrics design			
٧	Diversity in yarns texture added to the aesthetic and artistic value of woven fabrics.			
٨	Synthesis of materials and weave structures helped to produce innovative artistic formulations			
٩	Accuracy in implementing woven fabrics.			
١٠	Innovating formative methods for teaching art weave.			

NB:

1:The item is not clearly found

2:The item is clearly found

3:The item is very clearly found

Table (2) The Averages of Evaluating Woven Fabrics Designs

Jurors	Woven Fabrics Evaluation																
	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	F17
Juror 1	26	28	26	26	26	27	29	23	30	26	23	23	24	26	26	26	26
Juror 2	25	27	25	25	25	28	27	25	28	27	25	25	25	25	27	25	27
Juror 3	26	27	22	24	26	26	29	24	30	26	25	22	24	26	27	24	26
Juror 4	26	28	23	26	26	28	27	26	29	29	23	21	23	26	26	26	27

Juror 5	27	29	24	23	27	27	28	22	29	25	22	24	22	27	28	23	28
Juror 6	26	28	23	26	26	26	29	23	28	27	26	23	26	26	27	26	27
Juror 7	25	29	22	25	25	25	26	25	29	26	25	24	25	25	26	25	26
Juror 8	27	28	24	24	27	27	28	23	30	27	22	22	23	27	28	27	28
Juror 9	27	27	26	26	27	27	28	24	29	29	24	21	23	27	27	23	28
Juror10	25	29	25	25	25	29	29	25	28	28	25	25	25	25	28	25	27
Average	26	28	24	25	26	27	28	24	29	27	24	23	24	26	27	25	27

Discussions

Comparing the averages of different woven fabrics evaluation Figure (13&14) reveals that : Woven fabric design N 9in which the leno wave was used at a higher level than the other woven fabrics got the highest score (29 out of 30) which means that the use of the leno weave adds to the aesthetic and artistic value of weave art. Woven fabric designs **N2 and N7** got a high score of (28) due to the harmony of leno weave with other weave

structures used. Woven fabric designs **N6, N10, N15, N17** got score of (27) due to rhythm and harmony of weave structures and colors used. Woven fabric designs **N1, N5, N14** got score of (26) because synthesis of materials and weave structures helped to produce innovate artistic formulations. Woven fabric design **N(3,4,8,11,12,13,16)** got scores ranging from (25-23).

The averages of evaluating woven fabrics designs

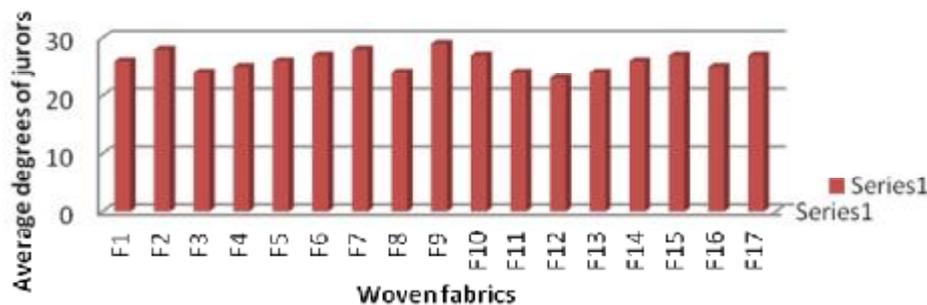


Fig. 14 Averages of Woven Fabrics Designs Evaluation

Conclusion

- Based on the discussion, the following conclusion can be drawn:
- Recognizing the artistic and aesthetic values and formative potentials of the leno weave and creating new art formulations helping innovation and creativity in the field of weaving art.
- Helping students and those interested in the field of weaving art practice experimentations of new structures and formulations.
- Developing the aesthetics of the woven artwork and students' artistic vision to formulate innovative woven works with the help of fancy yarns.
- Learning about different theories and new trends of weaving art.
- Developing students' aesthetic sense to recognize the principles of the weaving craft

and different technical development and providing students with the ability to differentiate between stereotype works in contemporary weaving art.

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