

Achieving the Golden Section Rectangle in Fashion Designing through the Creations of Plastic Artists	العنوان:
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إعداد

Prepared By

Dr. Sohaila Hassan Al-Yamani

Associated Prof. at Fashion

Department College of Arts &

Interior Design

Prof. Laila Ahmad H. Alam

Prof. of Designing in Art

Education College of Arts &

Interior Design

Iftkar Hamid A. Manshi

Lecturer at Fashion

Department College of

Arts & Interior Design

Achieving the Golden Section Rectangle in Fashion Designing through the Creations of Plastic Artists

Dr. Sohaila Hassan Al-Yamani, Prof. Laila Ahmad H.Alam, Iftkar Hamid A. Manshi *

Introduction :

Nodoubt the couture is considered to be a basic support for building and creating both the artistic works and couture , in the light of the aesthetic and artistic standards by which every good work is characterized {Guide 2009}. Couture ,in any branch of its branches , is the work of collecting multiple elements. These elements are different in dimensions in terms of the size , the area , the color , the form and the touch .The separated spaces between each of them may be differ or harmonize among each others in order to make the unit of the shape .Nodoubt the collecting between these elements requires an initial study to its rates . Furthermore , it requires a study to the rates the distances among each others in order to create an acceptable aesthetic harmony { Hashad 2009 } .

Couture is considered to be from the arts in which the aesthetic rates plays an important role in its design . Consequently , fashion designers should have the high ability of feeling with the aesthetic rates , until they become able to achieve it in what they offer to society . This research discusses the relationship between couture and the Golden section rectangle through the constructional and aesthetics of plastic art of the Saudi artists . It is considered to be a productive field in supporting the thinking and the future forwards , in terms of ideas generating , creation and richness of creative thinking in order to -form new conceptions and ideas .

* Associated Prof. at Fashion Department College of Arts & Interior Design, Prof. of Designing in Art Education College of Arts & Interior Design, Lecturer at Fashion Department College of Arts & Interior Design

The connection between the plastic art and fashion designing has been regarded from the twenties of the last century. A study, from fashion institute of technology in New York, has been issued in which designs are appeared to express about the art abstract paintings of the fashion designer Sonia Delonie . In the thirties of the same century , the effectiveness of the syrial school has been appeared strongly in the designs of the fashion designer Elsa Schiparelli . Moreover , some of the paintings of the artist Dali were portrayed above fashion designs that are related to soiree (Martin , 1987) .

Nodoubt the artistic works which have been produced from Saudi plastic artists , through which they handled several schools and trends during their artistic way about the classical , romance , realistic , impressionism , expressionism and others (Al-Harbi 2003) , are considered to be a vital reference from which fashion designers derived the creative artistic aspects , through developing both the visual experience and the sight which loaded with the aesthetic rate

Problem of the Study :

The main problem of the research may be summarized in the following :-

- 1- The way of achieving the Golden section rectangle by making use from the plastic creativity of Saudi artists . Then , to use it in fashion design , without affecting on the value of any of them inside the new frame .
- 2- The need of renewing and changing in fashion styles .

Importance of the Research :

- 1- To enrich the thinking and creation in fashion designing , in order to make use of it in the artistic fields of college of education for Home economics .
- 2- To pave the way for the ones who are interested in the field of clothes and textiles , in order to connect between fashion designing with the other fields .
- 3- To enhance the guidelines of our state towards expanding the use of computer in all fields .

Aims of the Research :

- 1- Achieving the Golden section rectangle in fashion designing
- 2- To emphasize on the Saudi personality through using a group of Saudi plastic art works in fashion designing .
- 3- Using computer in designing a creative fashion design , which are based on the principles of plastic artists through works' analysis .
- 4- Executing the creative designs and producing them in a fashioned shape .

The Assumptions of the Research :

- 1- Analyzing the constructive aesthetic aspects in the creations of plastic arts may contribute to a creative fashion design .
- 2- The divisions of the golden sector may contribute in distributing the constructiveness of plastic art on fashion designs , in order to achieve the golden aesthetic rate .
- 3- Using computer may helps in creative fashion designing .

Methodology of The Research :

The study depends on the analytical descriptive method . It is based on describing the phenomena and collecting information about it through classifying these information . Then , to organize these information and expressing about it in order to reach to derivations , which help us in developing the fact that we are studying (Obaidat and others , 2002) . Furthermore , this is accompanied with the applied studies which deal with the creative aspect in enrich fashion design , through analyzing the structure of Saudi artists" works , in order to achieve the Golden section rectangle .

Sample of the Study :

A willful sample to select a group of works of Saudi plastic works , according to the different artistic schools , for which they are belonging to . The artistic works have been collected through the artists , digital camera and booklets .

Means of the Study :

- 1- Computer painting program .Adobe photo shop 7 has been used .
- 2- Digital camera .
- 3- The used tools in designs' printing .
- 4- The personal interview
- 5- A form in order to collect information about Saudi plastic artists and their artistic works .

Terminology of the Research :

1- Fashion design :

It is the creative and renewed entity in its lines , colored areas and its varied materials which fashion designer tries to change the elements of its formation to a new design . This design is in touch with the circumstances of the real life in an aesthetic plastic picture (Al-Nbarawi , 2002) .

Also , (Ahmad 2001) defined fashion design as it is the using of the used elements in designing in order to achieve an esthetic and useful aims . Where the fashion are in speed change , so the monotonous designs should be avoided .

2- Creation (Creation means invention) :

It is said that some one create something , this is means that he is the first one to do that (Al-Bustani and others, 1998) .

The researcher defines it as the production and seeking for what is new , which satisfies the individual and society , and avoid common imitation .

3- Plastic art :

The art means ornamenting something .It is the artist application for his knowledge on what he are handling from nature pictures . So, he raises by it to a high model in order to achieve an idea or a passion by which the aesthetic expression is meant .

The artist is the one who is a creative in his art and he is the one who comes with the miracles (Al-Busatni and others , 1998) .

The plastic art is every thing derived from the real life and framed in a new way . The plastic artist is the one who frame the shapes , deriving his items from what surrounding him . Every man has its way ([www.kawaf-Artgallery .com](http://www.kawaf-Artgallery.com))

4- The Golden Section Rectangle:

It is defined by the researcher as a Greek discovery . It is the rectangle which found in plants , man and all the other creatures.

5 - The moving Figure:

It means a drawing similar to the human body . It clarifies the movement of the printed clothe . Moreover , it clarifies the places of distributing suggested artistic work for designing . In the researcher experience , the moving figures have been stretched , so that the idea of designing is clear on a larger area . Sulaiman and Shukri (1993) mentioned that moving figure is an exaggerator body in its length (the length of the head is 8,5, 9.5 or 10.5 . So the lines of design become more than from the real rectangle of the body . This helps in clarifying the design idea.

The Previous Studies:

- 1- Study of Bebras and Ahmad Fathi Faraj (2003) . It is entitled : (The effectiveness of a suggestive program in order to develop the creative in fashion design):

It aimed at designing a program with the aim of developing the creativeness in fashion design . Furthermore , to provide the individuals the skills , information and developing the abilities of creative thinking through realizing and understanding the plastic elements and to reinvest it new shapes and values .

The results revealed the success of the suggestive program effectiveness in developing the enclosed skills .

- 2- The study of Radwan , Mohammad Abdullah Mohammad and Saad Al-Din , Fikri Fadil (1999) .

It is entitled of (Developing the creativeness of the designer as a main factor from the essentials of designing process and the success of design process):

It aimed at identifying and highlighting the effective factors in the process of creative thinking and the way of its arouse and developing as a main factor in building and developing the designer's thinking and the success of design process .

It has came to that the process of the creative thinking depends on the realization of the designer to

the problem of the design with all its elements . Moreover , hor to use his personal experience and stocked cognitive in order to form a larger number of the distinctive framings . This is accompanied with his ability on its evaluating , analysis , examination and selecting its best .

3- The study of Mr.Martin Richard (1987) (Fashion and Surrealism)

The study of fashion and surrealism aimed at finding the relationship between fashion and the paintings of artists . This study has a concentration on the fashion designer Elsa Schiaparelli , who was at the age of Dali in 1930 . Also, the concentration on a group of the artists who registered the fashion through photographs . They are :

Horst.P , Cecil Beaton , Hoyningen-Huene , Kouise Dahi and Wolfe .

Also, the study has the identification with some of the Surrealism designers . They are Cassandre and Marcel Vertes . They represent the middle generation of designers . Also , the study has the works of fashion designers who are affected with the Surrealism trend , for instance Elsa Schiaparelli who is considered to be the pioneer of Surrealism fashion design .

The study has reached to that the Surrealism trend has a big affect on fashion . The surrealism shapes have entered to the fashion horizons among the thirties and forties . Also, the study has revealed that the Surrealism has a main role in fashion propaganda .

4- The study of Ahmad , Kifaia Suliman and Henri , Salwa (1989) (The mutual relationship among the art of fashion and the plastic arts at Greeks) .

The study aimed at finding a relationship between the art of fashion and the plastic arts of Greek fashion through the plastic arts . The one who concerned with fashion is interested in this kind of study , where it cannot imagine the style of clothes separately away

from the artistic styles which surrounds it , from scripture , architectonics , imaging and others .

The study has came to that there is a logic harmony among each cloth and the plastic art . This indicates the the ancient Greeks links in their aesthetic appreciation between the cloth and art . Also, the multiple styles that were derived from the general appreciation , that is dominant across the Greek civilization , was in keep in touch with the current fashion lines . The artist offered his different artistic works in harmony with the styles of the best of the finest part of society in his age .

This was reflected on fashion design , where we find that the similarity among some of the artistic works and some clothes was not in names merely , but it expresses the dominant style .

- 5- The study of Ahmad, Yosri Moawad Essa (1995) (Studying relationship between the artistic trends and fashion design) :

This study aimed at knowing the effect of artistic rends on fashion designing, especially the Surrealism trends and the trend of optical art . Furthermore, it aimed at knowing some foreign and Egyptian fashion houses , in which the affect of these two schools appeared on . Also, to determine the general characteristics of both of them . Furthermore , it aimed at informing the students of clothes and textiles department on fashion designs that are in connect with these two schools .

The study reached to that the possibility of using some of the characteristics of Surrealism and Opart trends and making use of its characteristics in order to make designs good for showing or hiding some physical defects .

The theoretical frame of the research has :

- 1- The artistic schools .
- 2- The golden section rectangle

As for the practical aspect , it has :

1- The experience of the researchers :

Firstly: The theoretical frame :

1-The artistic Schools:

The plastic art is an art which followed a determined frame. This frame has rules , fundamentals and schools . Each one of these schools has its trends and opinions to express about this art . It appeared across the ages . The Saudi artist has followed the rules of these trends , but in a way which reflects his own thinking and feelings that are affected with the environment in which he lives in . So, he produced artistic works with special personality .

The schools of plastic arts :

1-Expressionism:

It means to reveal , with the language of the shapes , colors , size , lights and shadows , about an artistic value with which the artist feels and wants to transfer his feelings , through it , to the others . The expressionism is the transferring of the inner charge of the artist to outside , in order to affect the other (Al-Basiouni 1983).

2. Optical illusion:

This school refuses to represent things as it is in nature, it insists on subjective, it links with engineering represented by square, rectangle, lines, dots, and circles. (shall 1984).

Ismail (1983) stresses that the school of optical illusion depend on fooling the eye, by harmonizing lines, color spaces, or cubes. Okasha adds (1990), that this school depends on fooling the eye by special effects such as analyzing the shape and the color, and using its refractive to make kinetic impact.

3. Art abstract:

Abu El-khere (1998) mentioned that it is the elimination of nature effects as a source of inspiration for art, and searching in art itself for the content of inspiration and beauty. For example, geometric, natural, mathematical, kinetic abstract. It shows the painting such like accumulated scrapes of paper, just like interconnected rhythm with no direct optical impact.

So, it is: the movement of art from the field of simulation of nature and portray the visible world to deal with ideas and feelings and emotions. And trying to search for the essence of things and expresses it by summarized shapes with artistic experiences.

4. Impressionism:

This school aroused a wave of liberalization in the arts. Its owners abandoned the studios preferring to record changeable visual impressions, and transfer it from the nature, so, they excel to highlight the impact of light (okasha,1990) . This movement was scientific and logical extension for the way that Althotheon create in the conversion of light and shadow to the color, then they turned to a new style of coloring visuals, by painting equal small spots of several colours which derived from rainbow colures.(Ismail 1983)

5. Symbolism:

It is taken from the word (symbol), make a thing symbol means, change it and hide its fact. So, the shape is the symbol of the object and hidden instrument that express it. This art Movement correlated with literature especially poetry. It relies on legends, stories, and myths. Symbolists turned to invisibles, escaping from their life, and going to their past and dreams and making symbols

The researcher depended in this research on art works of Saudi artists belonging to these different schools as a source of inspiration in couture.

2. Golden Section Rectangle:

Ancient Egyptians are the first people to set laws and theories, then comes the Greeks and make some amendments to the Egyptian simplified laws. They put a basis for ratios and fixed rates known as golden ratio. The ancient Greeks come to increasing rule in ratios and most of their work follows these ratios: **3:5, 5:8, 8:13.**

In couture, the ratio is calculated by comparing the individual parts of the design such as sleeves, pockets and collars with the whole design. The ratio is also calculated by comparing the clothing with the whole body. The ratio may or may not follow the body shape according to the trends in fashion.

Unequal ratio gives more beauty and balance than equal ratio. Ratio laws help the designer to get rid of disharmony between the design parts and give desired and pleasing effects to the outward appearance. Dividing areas into smaller one expresses elegance and youth, so this way is used in the clothes of youth and kids but designs with few divisions are used in evening wear (Al-Turki and Al-Shafi'I, 2002).

Atiya pointed out that the golden section is considered a numerical formula which Greek artists and philosophers had introduced as a model of the ideal beauty formulated by Euclid: the ratio between the smaller and the bigger section equals the ratio between the bigger section and other sections. A line can be divided in a ratio of: **5:8, 8:13, 13:21.**

Shawki (2005) and Riyad (1995) pointed out that the ratio of the golden section is **1:1.618.**

How to draw golden section rectangle

First, we put the compass in the middle of one side of any square such as A, B, C, D at the point of E and we make this point a centre to draw semicircle passing the points C and D. second, we extend the side (B, A) to meet the circumference of the circle at the point F. Third, we draw the side (F, G) vertically on the line (B, F). Fourth, we extend the side (C, D) to meet the side (F, G) at the point (G). Thus, the rectangle (F, G, C, B) is divided according to the ratios of the golden section.

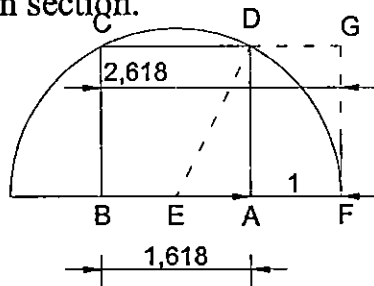


Fig. (1)

The golden section rectangle

It is obvious in figure (4) that ratios are not only related to the length of lines, but they also determines the relation between areas. It is also obvious that its width

should equal the length of any sides of the square and its length equals half length of the square side. That is, (B, E) plus (D, E) because $(D, E) = (F, E)$

The golden section is used in this research as a base in the process of designing which is considered one of the beauty theories being used.

Second: the researchers' experiment

The following steps have been taken as follows:

1. Creating different and innovative shapes from the golden section, number (7) different shape, which suits the type of design and the chosen art work, by changing the basic axes and diameters of golden section rectangle.
2. Structural analysis of chosen works of Saudi artists before its implementation on the design to understand the structural and colored sides of the art work, and to select the right parts with the proposed fashion design noting that the images of selected art works have been collected by using digital photography, brochures, or directly from the artists by using a form containing information about the artist and his work
3. Designing the proposed fashion by using the implemented program (Photoshop 7). Seven pieces of clothes have been designed including one jacket, one pants, one skirt, two dresses and sleepwear.

The proposed design has been drawn as follows:

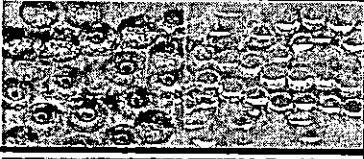
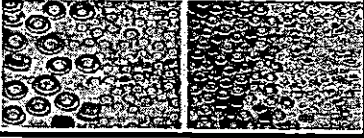


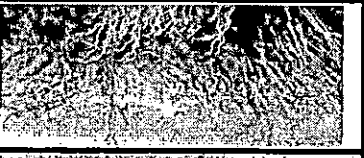
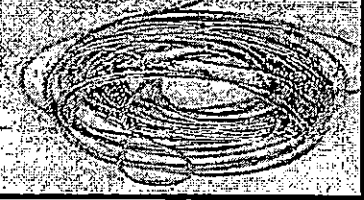

a-Drawing the design by using geometric style from front and back, putting subdivisions of selected golden section for every design, and distribute the art work on it, we should take care of harmony of lines and colors, and balance of shapes in order to make the proposed fashion design apparent, - Without prejudice of selected art work shapes.

b-Applying geometric style to a figure moving from front to back.

4. Choosing the required cloth for implementing all designs:

Blended and synthetic cloth has been chosen. This cloth contains polyester which absorbs colors significantly. The more of these fibers in the cloth, the stronger the absorption of color and thus colors become so bright and shiny and vice versa.

A table shows raw materials used in designs

Shape of the material	Name of the material	The experiment No
	Different sizes and colors of plastic pearl	(2)
	Checkered glass beads	(2, 6)
	Shells of different shapes and colours	(5, 6)
	Wooden spangles of different shapes and colours	(2, 5)
	Fur	(7)
	Nylon strings	(1)
	Colored fringe	(1)

5. Printing the proposed designs on the cloth by computer:
Printing process has gone through several stages:
- a) Dividing the design into parts, then converting each part to actual sizes on computer.
 - b) Converting images or parts of actual sizes to files on printing computer.
 - c) Printing files on plotter by using heat transfer and heat ink as shown in Figure (2).
 - d) Putting heat transfer on cloth and then compressing it by Heat Press. The temperature must be at 220° .
- Figures (2,3,4,5,6,) show the steps of cloth printing.
6. Implementing designs after cloth printing. Different materials have been added to some designs such as different shapes and sizes of colored beads, shells, fringe, spangles taking into account good distribution of these materials to enrich the proposed designs by giving new optical vision.

Fig. (2) plotter



Fig. (3) the way of putting special paper for cloth printing

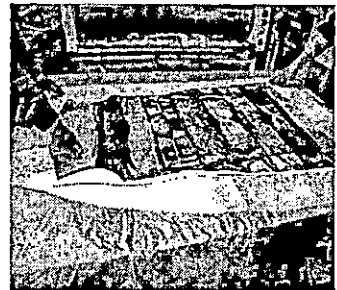


Fig. (4) the way of pressing paper by automatic press

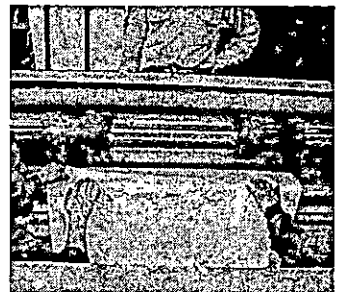


Fig. (5) how the printed cloth comes out from the automatic press.

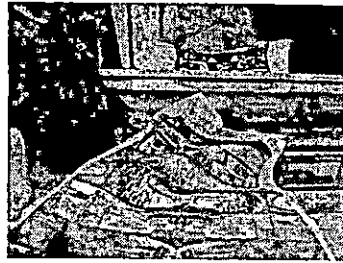
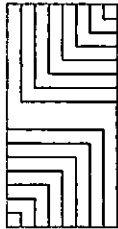
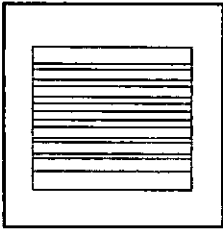



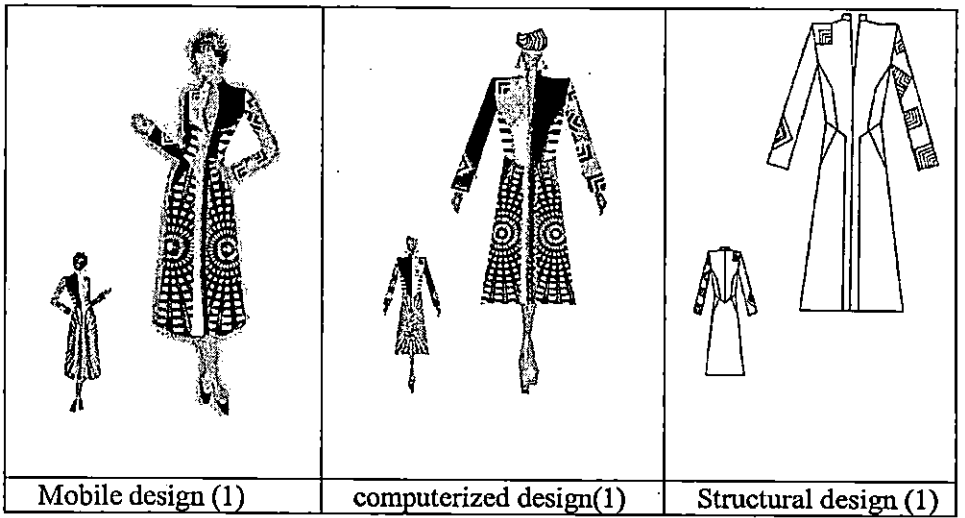
Fig. (6) the final form of the printed cloth.



We are going to present the experiment of researchers in the following tables:


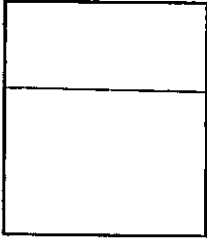
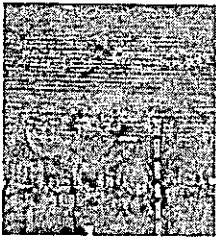
Table (1) the first experiment

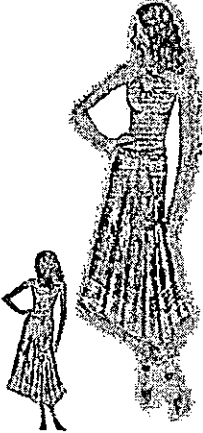
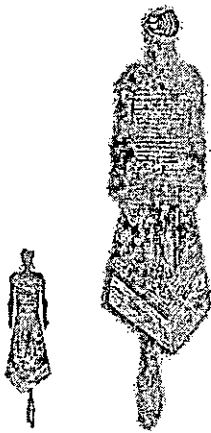
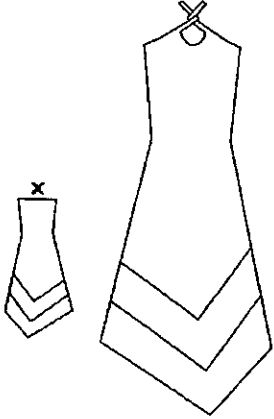
			
<p>The golden section used in the structural design</p>	<p>a) Portrait structure The structure is based on using square as a base of the art work with straight horizontal axes by using optical illusion.</p>	<p>The artist's name/ Fatima Wars Al-Jawi</p>	
	<p>b)Color indication Neutral colors (black and white) has been used in a way that leads to a required balance in the design.</p>	<p>Optical illusion</p>	<p>The school to which the art work belongs</p>
	<p>There are no materials as the artist used - computer in drawing the portrait</p>	<p>The materials used</p>	

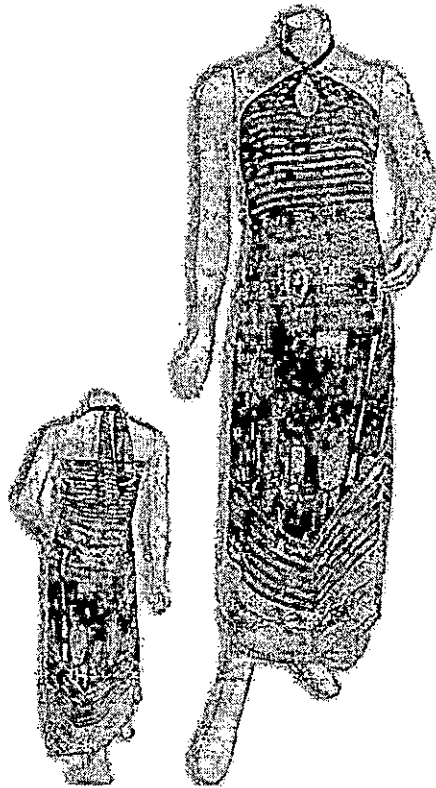


(Fig. - 7)The accomplished design (1)

Table (2) the second experiment

			
<p>The golden design used in the structural design</p>	<p>a) The portrait structure:</p> <p>It depends on dividing the art work into two sections by the horizontal axis. A group of overlapping geometric shapes has been used in the lower part of the art work in a balanced manner.</p> <p>b) Color indication:</p> <p>Cold colors have been used in the upper part of the art work in a shape of horizontal lines while cold and warm colors have been used in an overlapping shape to highlight the details.</p>	<p>The artist's name: Abdul-Aziz Ashour</p>	
		<p>impressionism</p>	<p>The school to which the art work belongs</p>
		<p>Acrylic and cloth</p>	<p>The materials used</p>

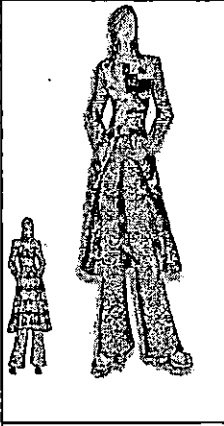
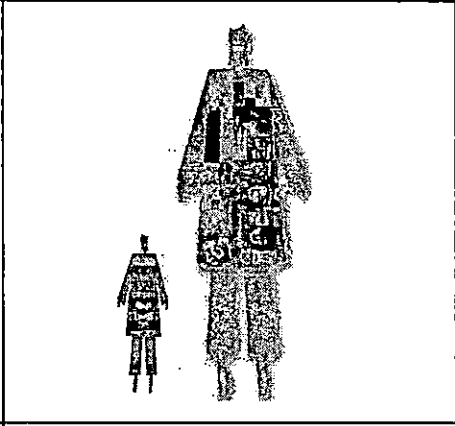
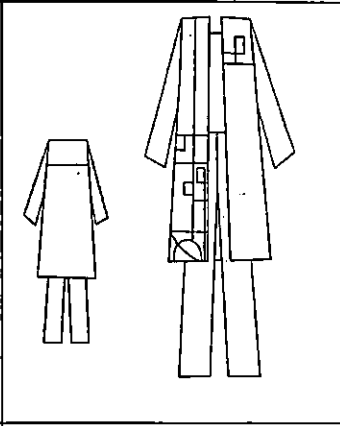
		
<p>The mobile design (2)</p>	<p>The computerized design (2)</p>	<p>The structural design (2)</p>

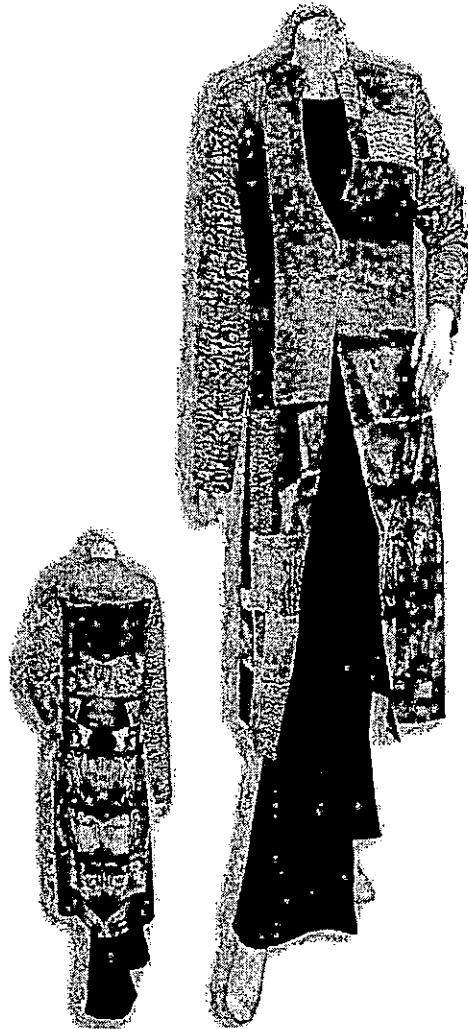


(Fig. – 8)The accomplished design (2)

Table (3) the third experiment

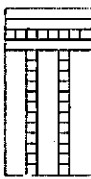
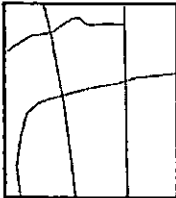

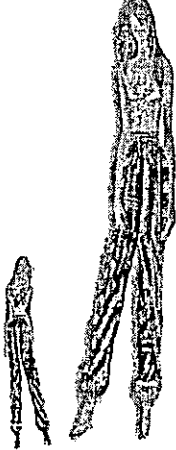
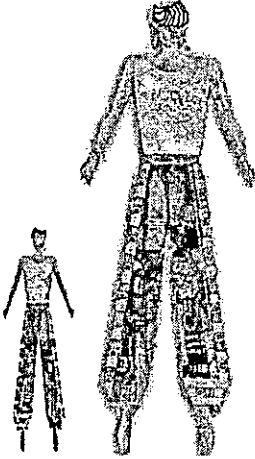
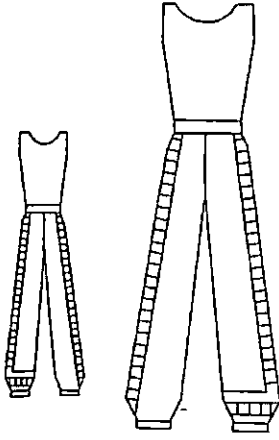
<p>The golden section used in the structural design</p>	<p>a) The portrait structure: It is based on square grid in which color spaces and shape spaces interchange with each other.</p>	<p>The artist's name/ Abdullah Abdul-Aziz Idris</p>	
	<p>b) Color indication: Color balance has been achieved through interchanging between cold and warm color groups in shapes.</p>	<p>Expressionism</p>	<p>The school to which the art work belongs</p>
		<p>Collage, acrylic and oil pastel</p>	<p>The materials used</p>

		
<p>The mobile design (3)</p>	<p>The computerized design (3)</p>	<p>The structural design (3)</p>



(Fig. - 9) The accomplished design (3)

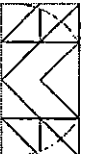


Table (4) the fourth experiment

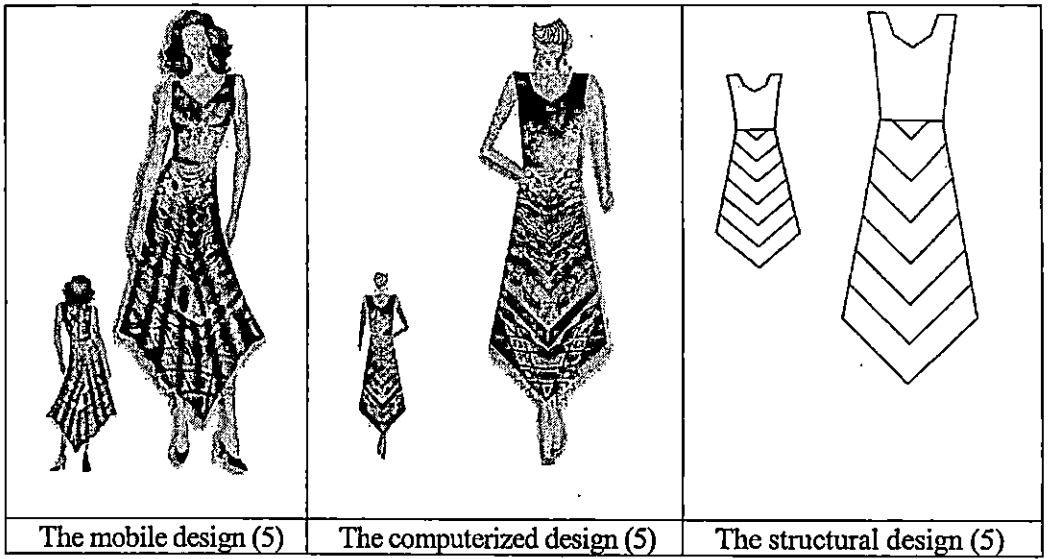
		
<p>The golden section used in the structural design</p>	<p>a) The portrait structure: It is based on dividing the art work into a vertical axis and crosswise curved lines. Geometric units and elements have been used to make various spaces in the art work.</p> <p>b) Color indication: Cold colors have been remarkably used, then warm colors have emphasized the geometric shapes in a way expressing balance and color harmony.</p>	<p>Name of the artist/ Abdul-Aziz Ashour</p>
		<p>symbolism</p>
		
<p>The mobile design</p>	<p>The computerized design (4)</p>	<p>The structural design (4)</p>



(Fig. – 10)The accomplished design (4)


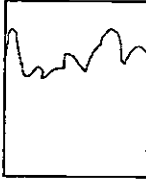

Table (5) the fifth experiment


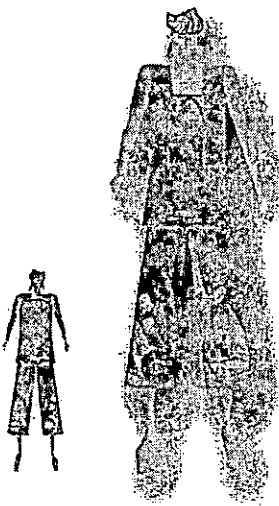
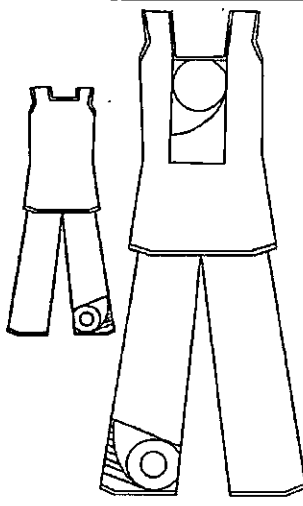
			
<p>The golden section used in the structural design</p>	<p>a) The portrait structure: The artists divided the portrait into grids and made the tensile strength in the middle of the art work to make a balance in the design.</p> <p>b) Color indication Dark derived colors have been used to emphasize cohesion between shapes of fish and color spaces derived from fishing elements in the background.</p>	<p>Name of the artist: Ahmed Tayeb Mubarak Munchi</p>	
		<p>Symbolism</p>	<p>The school to which the art work belongs</p>
		<p>Oil colors and canvas</p>	<p>The materials used</p>

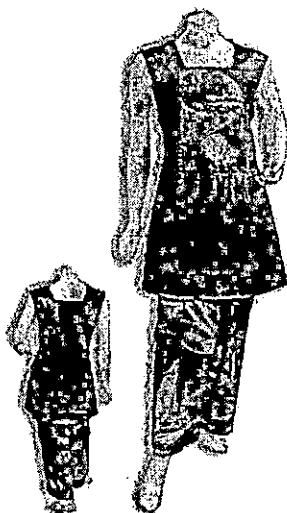


(Fig. -- 11)The accomplished design (5)

Table (6) the sixth experiment

			
<p>The golden section used in the structural design</p>	<p>a) The portrait structure:</p> <p>It is based on dividing the shape into two parts. One part includes the art work elements of fish and natural sea environment while the other includes the sea clarity.</p>	<p>Name of the artist: Sami Ali Al-Hussein</p>	
	<p>b) Color indication</p> <p>A group of cold colors have been used to emphasize the topic and they have been distributed in a balanced manner indicating high color harmony.</p>	<p>Abstract</p>	<p>The school to which the art work belongs</p>
	<p>Oil colors and canvas</p>	<p>The materials used</p>	


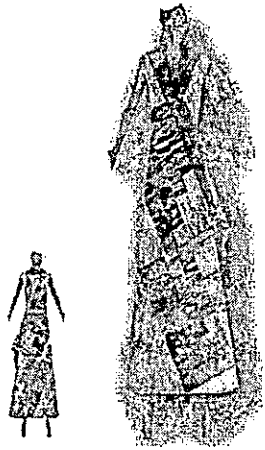
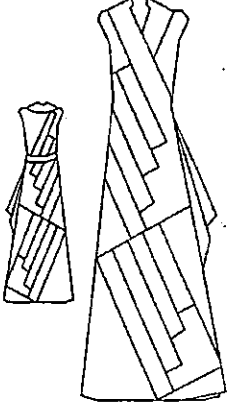
		
<p>The mobile design (6)</p>	<p>The computerized design (6)</p>	<p>The structural design (6)</p>

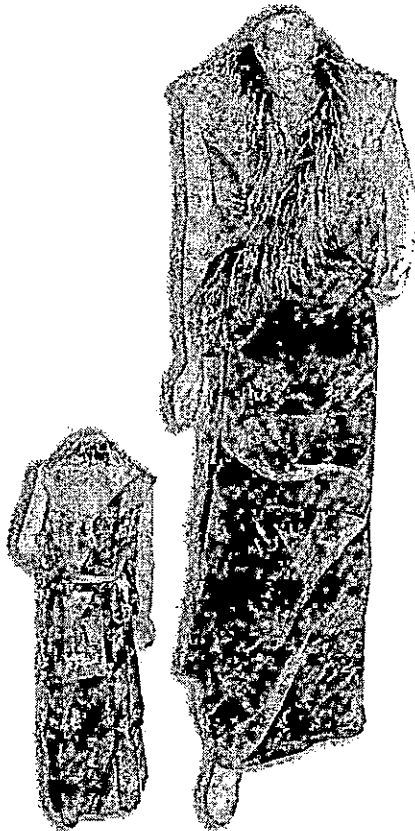


(Fig. – 12)The accomplished design (6)

Table (7) the seventh experiment

<p>The golden section used in the structural design</p>	<p>a) The portrait structure: It is mainly based on the curved line of the formation to make harmonious color groups.</p>	<p>Name of the artist: Eftikar Hamed Ahmed Munchi</p>	
	<p>b) Color indication: A group of warm colors have been used in the middle of the art work. The blue color has been used from the top and the bottom to achieve balance.</p>	<p>expressionism</p>	<p>The school to which the art work belongs</p>
		<p>Oil colors and canvas</p>	<p>The materials used</p>

		
<p>The mobile design (7)</p>	<p>The computerized design (7)</p>	<p>The structural design (7)</p>



(Fig. - 13) The accomplished design (7)

Results and recommendations

Results:

- 1) The study confirmed the possibility of finding solutions and new developed formulations by using the artists' creativity, away from imitation, and making good use of them according to the needs of the design art.
- 2) By analyzing the art work structures of artists, we can benefit from this wealth of art in carrying out new innovative designs that cope with modern times and Saudi environment. A different set of fashion which includes two dresses, one jacket, one skirt, one trousers, one pajamas and one robe have been designed. These designs have been drawn according to two visions: the first is a geometric vision of the design and the second is a mobile vision of the figure to reveal the overall shape of the design. According to what has been mentioned above, the first assumption which states that analyzing the aesthetic structural aspects of the creativity of Saudi artists may contribute to design innovative fashion.
- 3) The study confirms the aesthetic role of the golden ratio (the golden section subdivisions) on designing innovative fashion.
- 4) We managed to distribute plastic art structures in the proposed fashion designs through the golden section subdivisions which helped in distributing them in a creative way affected the creative vision of fashion design. According to what has been mentioned above, the second hypothesis which states that the golden section subdivisions may help in distributing plastic art structures in designs to achieve the golden aesthetic ratios.
- 5) Computer contributes in designing innovative fashion in terms of diversity, color, material and arranging works of Saudi artists and reorganizing them.
- 6) We managed to make different designs with different materials and attractive color effects by using the applied program (Photoshop 7). According to what has been

mentioned above, the third hypothesis which states that using computer may help in designing innovative fashion has been achieved.

Recommendations :

- 1) The necessity of continuous support to researches by using modern technologies and advanced scientific methods.
- 2) Introducing computer as a helping agent in fashion design in the faculties of home economics and teaching the applied programs has a positive effect on developing their artistic, aesthetic and creative tastes and their ability to imagine the design.
- 3) Doing further researches and studies to enrich the field of fashion design with all that is new and benefitting from research and practical experiment results to create designs characterized by artistic and creative sense.
- 4) Interest in developing the creative aspects of the students of home economics faculty to achieve high technical aspect in modern practical applications to emphasize on Saudi identity in fashion design.
- 5) Opening up a wide horizon in the field of fashion design by profiting from art works of Saudi artists.

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