The elderly color's preferences to be used in designing Printed Upholstery Fabrics

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ABSTRACT: The elderly passes through many physical and physiological changes which necessarily reflected on the psychological and social features in him. The psychological status in the elderly is a result of a number of factors, each one of them affect positively or negatively on the psyche of the elderly. It is therefore not a typical case of all people, but each one of them has his own case according to the influence of different factors and the extent of his influence. These psychological changes at this stage necessarily require aesthetic formulation of the surrounding environment in order to achieve psychological comfort and calm.

And from this came the research idea of preparing the elderly surrounding environment through designing printed fabrics for furnishing the rooms to suit this stage taste and give the sense of psychological comfort and calm on the elderly. The researcher did this through displaying opinion poll on a sample of elderly people (male and female) to know the preferred color groups to the elderly which raised the feelings of each color group. The recent studies proved that color considered as one of the important design elements. It affects the human when he sees it because of the reflected colors .It gives the elderly the sense of tranquility and comfort or sadness and depression.

It has been recording their color preferences and use them in designing suitable designs for every type of textiles (Curtain-furnishing) by using sample geometrical shapes which inspired from some paintings of modern art. So this study considered as an attempt to compensate for the decline in the mental status resulting from the decline in the physical condition of the elderly and his inability to movement as in the past. Therefore he/she would have to stay at home for long periods and especially in the bedrooms or living rooms, through changing the surrounding environment of the elderly through creating designs suitable for print upholstery fabrics for the elderly rooms according to their preferences of color that rise the positive senses in them.

KEYWORDS: The Elderly, The Psychology of Color, Printed upholstery fabrics.

1 INTRODUCTION

1.1 RESEARCH IMPORTANCE

It is important to well study the elderly psychological needs because of the decline in physical and mental ability that happened to them at this age. Hence came the importance of the research to identify the color preferences of the elderly and the emotions raised by each color group separately. Then design printed upholstery fabrics bearing the essence of the elderly according to their preferences and choices. This is to prepare the surrounding atmosphere for the elderly, which should provide a measure of calm, tranquility and peace of mind and prevent the feeling of depression.

1.2 RESEARCH PROBLEM

Different senses organs are heavily affected by advance in age. Therefore, it is rather expected that psychological changes may follow to accompany this lessened abilities. The present study is an attempt to compensate for the reduced aptitudes and changed attitude accommodating the surrounding environment of the elderly, by creating designs suitable to be printed

on the upholstery fabrics of the elderly rooms according to their color preferences. The research question can be stated as "Is it possible doable to provide the elderly people with upholstery designs that match their preferences and choices?

1.3   RESEARCH SIGNIFICANCE

Provide new patterns of printed fabrics carrying the essence of the elderly people preferences, partialities and choices. Designs are predetermined to be suitable for any of the upholstery fabrics surrounding elements in a standard elderly accommodation. This should provide maintain calmness, tranquility, peace of mind and stops the feeling of depression. Previous studies in the field have paid no attention to examine this elderly accommodation specific area.

1.4   RESEARCH OBJECTIVES

The research aims to identify the colors meanings and its psychological effects on individuals. It also aims to design printed upholstery fabrics for the elderly rooms. Theses designs had designed according to the elderly males and females' color preferences.

To achieve that the researchers had to recognize the colors preferred by the elderly for room upholstery's fabrics to achieve peace of mind, active and happiness and stop the negative feelings.

1.5   RESEARCH HYPOTHESIS

Research supposed that:

- The artistic study of the psychology of color will clarify the meanings and psychological effects of colors on the elderly males and females.
- Upholstery printing designs can be acknowledged by employing elderly color preferences and choices. This is based on the assumption that acknowledging the color preferences for the elderly in a specific age may help presenting solutions for some psychological problems that are related to this category.

1.6   RESEARCH LIMITS

The spatial limit: Arab republic of Egypt.

The temporal limit: is represented in the elderly males and females that age vary from (55 to 80) years.

The objective limits: making use of the elderly people's color preferences in innovating designs that suitable for printing upholstery fabrics' designs which use in elderly people rooms.

1.7   RESEARCH METHODOLOGY

Experimental method: explains the innovated designs that concluded from the analytical studies.

Statistical method: explains the field study preparation in terms of determine the geographical and human field of the study, and concluding the statistical samples of the research.

Descriptive analytical method: approach through:

-Describing the statistical results of the research samples.

-Analyzing the designs that depended on the elderly people's color preferences.

2   THEORETICAL FRAMEWORK

2.1   FIRSTLY: AGING CONCEPT

The researchers did not yet agree on a general definition of aging, because it is not a constant phenomenon that occurred in the latter stages of a person's life, but it is a period of the life stages in which the human reaches it after the age of sixty five, so it is a vital natural process affected by lifestyle, environmental factors, and genetics factors (Abo Awad, 728). Cowdary mentioned in his book person and aging that all of the organisms go through a changes series featuring with growth, improving, maturity, and eventually reach aging. From here aging defined as a group of defection complicated operations

that happened cumulatively through time appeared on different organism systems like changes in cells and tissues that can't be avoided (Per & Multer, 1992, 43). Sometimes the Researchers in the field of aging study use the aging concept and progress in age as they are synonymous, or give the same meaning.

Tamir defined aging as continuing operation and progressive where the knowledge system and cognitive and kinetic take on declining gradually, and he divided it into three related age groups:

- *Young- old stage:* It extends from the age of 55-65 years, people who belonging to that age group enjoy a good health, and they are often continuing to work.
- *Middle-old stage:* It extends from the age of 65-70 years, shows the group of retired people who have increasingly leisure. (Tamir, 1979 , 80)
- *Old-Old stage:* It extends from the age of 75 years and older, individuals here characterized by weak health and Infected. (Hooyman & Kiyak , 1991, 35)

2.1.1 THE CHARACTERISTICS OF AGING STAGE

There are characteristics for each life stages, scientists found in aging stage physical and psychological changes that distinguish it from other life stages, this period is satisfactory or frustrating depending on the ability of the elderly to adapt to these changes. The changes that happened to them determine the stage's features that are usually refer to retreat and deterioration, the deterioration is often comes because of physical or psychological reasons. Hooyman & Kiyak , 1991, 7)

The individual does not move directly to aging by reaching the age of sixty or sixty-fifth, because it is a gradually process and changes happened slowly on it (Almeligy, 1975, 65). Generally the most important characterize in this development that the humanity growth start to converted in the reverse direction, where the growth in previous stages is moving towards improvement and development and promotion in a slowly pace at the beginning then this rate is accelerating gradually until it reaches its maximum in very end of life stage (Abo Awad, 726).

In spite of the general deterioration experienced by all the physical, psychological and social aspects of the human being at this stage, however there is always the possibility of compensation for this deterioration. Decline in mental, physical and psychological abilities refers to benefit from the aging's previous experience, and the effort to improve the aging's surrounding environment to a positive feelings raises atmosphere like optimism, active, mentally alert, comfort and secure. And get far away from anything that raises feeling sad, depression, tension and nervousness. So we got the importance of this research on identifying the physical and psychological effects and then identifying the color preferences to elder and the one he/she wants to use on his bedroom and living room, this is to raise the positive feelings on the surrounding environment, because of the deterioration on elder's physical abilities makes him tends to stay at home what makes it the most effective environment to him.

2.2 SECONDLY: COLOR

Color is one of the most important elements in art. Besides the aesthetic beauty of color, proper use of color will significantly help convey messages as well as impress people. (Srisuthep, 2009, 3)

More recently, studies have shown that colors can affect us when we don't see them. Noted neuropsychologist Kurt Goldstein confirmed in his classic, The Organism, that a blindfolded person will experience physiological reactions under rays of different colors. In other words, the skin reads color, and our bodies, minds, and emotions respond. Attached to the human brain is the pineal gland, which controls the daily rhythms of life. When light enters through the eyes or skin, it travels along neurological pathways to this pineal gland. Different colors give off different wavelength frequencies, and these different frequencies have different effects on us. (Cerrato, 2012, 4) Therefore it is very important to study color and its psychological and physiological effects on human body.

2.2.1 COLOR CLASSIFICATION

In the time of Aristotle it was believed "all colors to be the product of a mixture of white and black". This belief continued until 1666 when Sir Isaac Newton, during an experiment with light and prisms, proved that light could be broken into a range of color. This range of color is what we call the visible spectrum. It was Newton who chose the seven hues: red, orange, yellow, green, blue, indigo and violet.

Building on what Newton taught us about light, it has since been discovered that light travels on waves at about 186.300 miles per second. These waves have length and vibration. At the red end they are longer at 700 nm compared to 400 nm at

the violet end. Due to this difference in length and vibration, infrared, which is below the red end of the spectrum, is felt as heat while the waves at the violet end are experienced as cooler. Thus we have our distinctions of "warm" and "cool" colors. (Meola, 2005, 41)

Warm colors: Warm colors are defined as being bold and energetic, although they psychologically are associated with happiness and comfort and produce warm, inviting cozy feelings. Warm colors include: Red, Orange, Yellow, yellow-Green, as shown in figure no(1).(Black, 2002,17)

This characteristic has both positive and negative effects because while using them can make something stand out, too much of them can be overwhelming in a sense that it drowns out the other colors. The warm colors cause an increase in heart rate, respiration, and blood pressure because it has a stimulating effect on the nervous system. Due to the size of its wavelength, Red is the warmest color and has the strongest effects on the human mind. It increases enthusiasm, encourages action, and is often associated with desire. The color orange shares some of the same characteristics as red but without the intensity. (Allen, 2007, 5-6)

Cool colors: The Green, Blue, Indigo, and Violet hues from visible range of color are considered to be the cool colors, as shown in figure no(1). They have the opposite effect of warm colors and lower the heart rate, respiration, and blood pressure because they affect the parasympathetic branch of the nervous system. (Allen, 2007, 7) Cool colors make designs appear slick and professional but their coolness tends to turn people off due to their calming effect on the psychology. (Black, 2002,17)
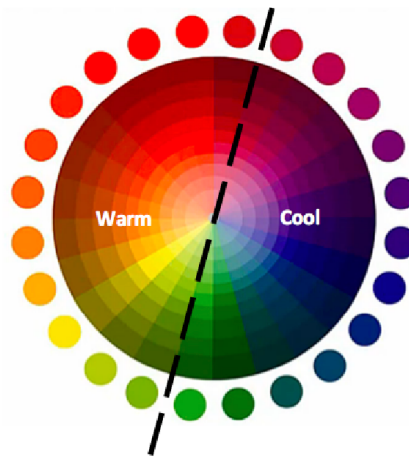

Fig (1) Warm and cool colors

Neutral colors: Some colors are referred to as being neutral. No color however is really neutral. Black, White and Gray are all considered neutral colors. (Black, 2002,17)

2.2.2 PREVIOUS STUDIES ABOUT COLOR PSYCHOLOGY

In 1982, a study at New Mexico State University was done on 337 children from grades four to six. "In the regular classroom setting they were asked to respond to a simple questionnaire that included 12 questions all worded in the same style; e.g., (What color does *hope* make you think of?) The subsequent questions replaced the word *hope* by the following in sequence: *anger, sadness, honesty, fear, happiness, pain, love, death, strength, school,* and *life*." The results showed that, "When all 12 concepts were combined, red was the color most often named(16.4%), followed closely by black (15.1%), blue (14.4%), and white (9.1%), these four colors seeming to carry the most symbolic meaning for children" (Byrnes, 1983, 247-250). This study also points out the fact that the children's associations of the colors did not differ much from adults, indicating that children pick up early on cultural associations. (Meola, 2005, 42)

In a study done in December of 1999, Nancy J. Stone and Anthony J. English tested the effects of color in the work place and it's correlation to performance. What they found was "….a red office is more stimulation and may cause vigor, anger or tension…" However it was found to increase performance. It was found that blue in an office may "…. Cause greater depression, as well as sadness, fatigue or relaxation…" and that "…. workers in white offices complained of more head aches and instances of nausea". (Meola, 2005, 43)

2.2.3   THE PSYCHOLOGICAL MEANING OF INDIVIDUAL COLORS

Color psychology is the study of hues as a determinant of human behavior, because studies have been proven that color influences perceptions that are not obvious.(https://en.wikipedia.org/ Color_psychology) And historically, for centuries Hindus practicing Yoga have associated color with power centers, known as chakras, in bodies. From the base of the spine to the crown of the head, these centers correlate to the spectrum .Red, at the base (survival); orange at the sacrum (creativity); yellow, at the solar plexus (joy); green, at the heart (harmony); blue, at the throat (communication); indigo, at the forehead (intuition) and violet, at the crown (enlightenment). (Meola, 2005, 43)

Therefore color selection is a very important element that affects people emotionally and mentally on a subconscious level.Color has a long association with symbolism and affects people psychologically. (Srisuthep, 2009, 17)

Red: Being the longest wavelength of the spectrum colors, red is a powerful color. (http://www.colour-affects.co.uk/,2015) It reflects energy and motivate an individual to take action. It can stimulate people to make a quick decisions and increase expectations creating a high arousal threshold. People who like red are generally exciting, stimulating people to be with. They tend to stay on top of things with a passion and for life. (Black, 2002,25- 26) In color psychology red means energy, passion, action, strength and excitement. Red stimulates the physical senses such as the appetite, lust and sexual passion. Although it is often used to express love, it really relates more to sexual passion and lust pink relates more to romantic love than red. Physiologically, red stimulates and energizes the physical body, including the nerves and the circulation of blood, raising blood pressure and heart rate. It is stimulating to the appetite and therefore a great color to use for any product associated with food and its service, including restaurants and take-away businesses. (Cerrato, 2012, 4)

Orange: A combinition of red, which commands action, and yellow that adds happiness makes this a pleasant warm color. (Gage, 1999, 26) It represents enthusiasm, fascination, happiness, creativity, determination, attraction, success, encouragement, and stimulation. (Cerrato, 2012, 6) Lovers of this color work and play hard, like people are adventurous and enthusiastic. They have unique ideas, always looking for new things to conquer with a strong streak of determination and are more agreeable than aggressive. (Black, 2002, 28) To the human eyes, orange is seen as a very hot color, so it gives the sensation of heat. Physiologically, orange increases oxygen supply to the brain, produces an invigorating effect, and stimulates mental activity. Therefore it is highly accepted among young people. Physiologically, orange vitalizes, inspires and creates enthusiasm. It is stimulating to the appetite and social conversation. Psychologically, orange gives the impression of affordability, depending on the shade chosen and its combination with other colors. (Cerrato, 2012, 6)

Yellow: Pure yellow produces sensations of brightness and warmth. (Gage, 1999, 29) It's associated with joy, happiness, intellect, and energy. A person surrounded by yellow feels optimistic because the brain actually releases more serotonin (feel good chemical in the brain) when around this color. It is the color associated with optimism. (Cerrato, 2012, 6) Psychologically yellow stimulates the logical side of the brain and mental clarity. It promotes wisdom and academic pro-ficiency. It inspires original thinking and creative ideas. Physiologically, yellow stimulates the mind and mental activity. It increases the analytical processes and our logical reasoning, helping with decision-making. (Cerrato, 2012, 7) The people who like yellow usually have sunny personalities and are concerned about society and nature. (Black, 2002, 29)

Green: Green is a combinition of blue and yellow . The blue qualities represent peace and tranquility, while yellow brings happiness and light-hearted feelings to this color. The geen colors communicate peace and growth and are considered fresh, clean and revitalizing and speak of ecology and nature. Green brings feelings of hope and thoughts turns to new beginnings and renewals of life. (Black, 2002, 29- 30) Being in the center of the spectrum, psychologically green relates to balance and harmony of the mind, the body and the emotions. (http://www.colour-affects.co.uk/,2015) It assists in decision making by helping us to see all sides clearly. Physiologically, green balances people's emotions, creating a sense of calm and in additions it motivates people to join social groups and satisfies their need to belong. (Cerrato, 2012, 8) People who like green are usually balanced and stable individuals, they have high moral values and tend to do the right thing. (Black, 2002, 30)

Blue: Blue is the most universally favored color of all and therefore the safest to use. Blue is the color of the sky and the sea therefore it is one of the most calming colors and often associated with tranquility and calmness and evokes peaceful feelings. It is regarded as therapeutic to the mind and body. People who like blue are sensitive to the needs of others and form strong attachment. They are generally conservative, even-tempered and reliable. (Black, 2002, 32) Physiologically, blue is calming, reducing tension and fear. Because seeing the color blue slows the pulse rate, and causes the body to produce chemicals that are calming; but that isn't true of all shades of blue. Some shades (or too much blue) can send a cold and uncaring message. Many bedrooms are blue because it's calm, restful color, and people tend to be more productive in a blue room because they are calm and focused on the task at hand. (Cerrato, 2012, 10)

Violet : The shortest wavelength is violet, often dscribed as purple. And it is consider as a bridge between warm and cool colors being a combinition of red and blue, (http://www.colour-affects.co.uk/,2015) it is considered a spiritual color. Purple people can be secretive, so that even when theyseem to confind freely, their closet friends never completely understand them. People who are attracted to purple are people who have an aura of mystery and intrigue. Purple is often the preferred color by artists, unconventional people and people who like to consider themselves different from the common herd. (Black, 2002, 32) Physiologically, purple heightens people's sense of beauty and their reaction to more creative ideas. So academic institutions often use medium shades of purple or violet as they inspire intellectual thought and achievement. (Cerrato, 2012, 12-13)

Black: is a mysterious color associated with fear and the unknown power. It also denotes strength and authority; it is considered to be a very formal, elegant, and prestigious color. But for some people black is the symbol of grief, death, evil, sadness and depression. (Cerrato, 2012, 14) People who like black may be conventional, conservative and serious, or they may think of themselves as sophisticated, or as very dignified. (Black, 2002, 33) Psychologically black means authority, power and control. In many situations it can be intimidating, unfriendly and unapproachable. Alternatively, it can be seen as sophisticated, dignified and serious. Physiologically, black is intimidating and controlling, although its power can instill confidence in some. (Cerrato, 2012,15)

White: Symbolizes purity and innocence, evokes a sense of spaciousness and clarity. (www.dirigodev.com, 2015) People who prefer white tend to be neat and immaculate in their clothing and homes. White can signify a self-sufficient person and occasionally the innocence of recall of youth and the simplistic way of life. White is sometimes seen as being a very sterile color being psychologically associated with hospitals, nurse's uniforms, and doctors. (Black, 2002, 34) Physiologically, white is calming as it creates simplicity, organization and efficiency out of chaos. It clears the way forward. (Cerrato, 2012,14)

Gray: Gray is combination of black and white and is the most neutral of all the shades. Gray can signify psychologically gloominess, sadness, ashes and the dust. (Black, 2002, 34) In addition physiologically, gray lacks individuals energy, be depressing, depending on how much lightness and white is in the gray. Dark gray is more depressing than light gray. So it needs to be combined with other colors to give it passion, energy and life. (Cerrato, 2012,16) People who like gray tend to be neutral about life. They like to protect themselves from the hectic world in a blanket of noncommitment preferring a secure, safe and balanced existence. They work hard and are the "middle of the road" type of individual. They are practical and calm and do not like to attract too much attention. (Black, 2002, 34)

3   ANALYTICAL STUDY

3.1   PROCEDURES TO DESIGN PRINTED UPHOLSTERY FABRICS OF ELDERLY ROOMS

The different sensory organs affected severely by the progress in age, it was also expected that the psychological changes reduced a number of the physiological abilities of the elderly. The current study seeks to discover the opinion of the elderly to know about their color preferences for printed upholstery fabrics for both of the bedrooms and the living rooms and that to try to compensate for this decline through the change in the environmental surrounding of the elderly. To achieve the objectives and hypotheses of the research and make sure of its assumptions, the researcher made questionnaire on a selected sample of elderly people to explore their opinion and their preferences design. The procedure of the strategy of making design divided into two-stages:

First stage: Previous study through a questionnaire records the preferences color to the sample members from the elderly to the different color groups nuances and different feelings resultant from it (warm colors - cool colors - neutral colors) and then statistically analyzed to reach the favorite color groups for them in the designs suitable for every different style type of upholstery fabrics (furnishing and curtains) for both bedrooms and living rooms.

Second stage: Post study works to innovate appropriate designs for printed upholstery fabrics for bedrooms and living rooms based on color groups favored by the elderly to contribute in the achievement of calm and comfort. Then display post questionnaire to the designs on the sample members and measure their opinions and their preferences. The study in this way has shown that the elderly preferences and sensory abilities are essential factor that should be dealt with in an integrated strategy to the design to fully respond to elderly needs.

3.1.1 THE SAMPLE

The study sample consisted of a group of elderly people (160 elderly) in the age group ranging from 55 to 80 years. They have been divided into two groups: male sample (no. = 80) and female sample (no. = 80) .Table (1) shows the characteristics of the study sample:

Table (1) Represents the study sample characteristics

Sample / Statement	Males (N=80)	Females (N=80)
Age	55-72	60-80
Average	61.87	66.94
Educational level		
Low (reads and writes)	4%	7%
Average (basic education)	14%	15%
High (university education)	82%	78%

It is clear from Table (1) that the average age in the male sample (61.78 year), and the female sample (66.94 year), while the highest percentage in terms of education is university education by 82% in the sample of elderly male, and 78% have sample of elderly females and this had a positive impact in terms of accepting and understanding the questionnaire and the ability to answer the questions

3.1.2 STUDY TOOLS

This study is based on questionnaires to measure the preferences colors and designs of the elderly. The plan of preparing the appropriate standards of the study began at two levels:

3.1.2.1 PREVIOUS STUDY

Previous questionnaire to measure the elderly opinion about the more favorable color groups to them in terms of feeling comfortable and vital activity, happiness and optimism..... etc. This is to make designs suitable for printed upholstery fabrics for living and bedrooms for the elderly. A questionnaires had been prepared includes three color groups (warm - cool - neutral). The questionnaire questions have two axes containing seven points:

First: Does this color group make you feel with?

- Comfort and tranquility.
- Vitality and activity.
- Happiness and optimism.
- Tension and nervousness.
- Sadness and depression.

Second: This color group is more suitable such as upholstery fabrics for:

- Living room.
- Bedroom.

3.1.2.2 POST STUDY

Post questionnaire to measure the suitability of inspired designs from the elderly color preferences to print bedrooms and living upholstery fabrics. A questionnaire had been prepared includes a number of seven designs (furnishings, curtains) and that to identify the most designs are preferred for the elderly in terms of achieving a sense of calm and psychological comfort. The Questionnaire questions are:

- The appropriate of design elements with age group of the elderly.
- The appropriate of units organization within the design.
- The color harmony in the design idea.

- The achievement of calm and comfortable feeling.
- The achievement of excitement and attract attention.
- The achievement of excellence and modernity.
- The appropriate of design idea to the suggested usage.

3.2   THE PREVIOUS STUDY RESULTS

The results of the questionnaire regarding the preference of colors of the elderly and the various sensations stemming out of them. The statically analysis tackled the results of the old men and women's opinions about the color collection separately, through reading, repetitions, percentages and SMA are shown, which gives each of them order by preference.

3.2.1   FIRST COLORIMETRIC GROUP

* *The research results of old men's opinions in the first colorimetric group "warm colors like red, orange, and yellow".*

Table (2) Shows the repetition, SMA, and percentage of the old men's preferences to the first colorimetric group

The Axes	First colorimetric group								
Does this color group make you feel with?	Yes	percentage	No	percentage	To Some Extent	percentage	SMA	percentage	Ranking
Comfort and tranquility.	21	26.25	26	32.50	33	41.25	155	64.58	4
Vitality and activity.	29	36.25	28	35.00	23	28.75	161	67.08	3
Happiness and optimism.	22	27.50	19	23.75	39	48.75	163	67.92	2
Tension and nervousness.	31	38.75	24	30.00	25	31.25	167	69.58	1
Sadness and depression.	18	22.50	41	51.25	21	26.25	137	57.08	5
This color group is more suitable such as upholstery fabrics for bedroom	28	35.00	19	23.75	33	41.25	169	70.42	1
This color group is more suitable such as upholstery fabrics for living room	19	23.75	24	30.00	37	46.25	155	64.58	2
Total	168		181		211		1107	65.89	

From the previous table, it is clear that:

- The first colorimetric group gives the feeling of tension and nervousness to 69.5% of elder men.

- There is a convergence between preference of first color group by the old men in terms of happiness and optimism by up to 67.98% and feeling of vitality and activity by up to 67.08%.

- There is a preference for light shades of the first color group that fit the bedrooms by up to 70.42%.

* The research results of old women's opinions in the first color group "warm colors like red, yellow, and orange".

Table (3) Shows the repetition, SMA, and percentage of the old women's preferences to the first colorimetric group

The Axes	First colorimetric group							
Does this color group make you feel with?	Yes	percentage	No	percentage	To Some Extent	percentage	SMA	percentage	Ranking
Comfort and tranquility.	28	35.00	16	20.00	36	45.00	172	71.67	2
Vitality and activity.	29	36.25	24	30.00	27	33.75	165	68.75	3
Happiness and optimism.	62	77.50	7	8.75	11	13.75	215	89.58	1
Tension and nervousness.	30	37.50	25	31.25	25	31.25	165	68.75	3
Sadness and depression.	21	26.25	33	41.25	26	32.50	148	61.67	4
This color group is more suitable such as upholstery fabrics for bedroom	32	40.00	29	36.25	27	33.75	179	67.80	2
This color group is more suitable such as upholstery fabrics for living room	29	36.25	24	30.00	27	33.75	165	68.75	1
Total	231		158		179		1209	71.00	

From the previous table, the research finds that:

- The first color group gives the feeling of happiness and optimism to 89.58% of old women.

- There is a tie in preference of first color group by old women in terms of vitality and activity, and a sense of tension and nervousness by up to 68.75%.

- There is a preference for light shades of the first color group to fit living rooms by up to 68.75%.

* It is shown in the table no. (2, 3) presence of difference between both samples in preferring the first colorimetric group concerning:

- The fact that it sends the feeling of tension and nervousness to the old men's opinion average, while it sends the feeling of happiness and optimism to the old women's opinion average.

- Preference of light shades of the first color group to fit bedrooms by the average of the old men's opinions, while it's preferable to fit living rooms to the old women's opinions, there are variety of opinions among the rest of the variables.

3.2.2   SECOND COLORIMETRIC GROUP

* The research results of the old men's opinion about the second color group "the cool colors like green, blue, and violet"

Table(4) Shows the repetition, SMA, and percentage of the old men's preferences to the second colorimetric group

The Axes	Second colorimetric group								
Does this color group make you feel with?	Yes	percentage	No	percentage	To Some Extent	percentage	SMA	percentage	Ranking
Comfort and tranquility.	51	63.75	6	7.50	23	28.75	205	85.42	1
Vitality and activity.	19	23.75	16	20.00	45	56.25	163	67.92	3
Happiness and optimism.	29	36.25	11	13.75	40	50.00	178	74.17	2
Tension and nervousness.	12	15.00	27	33.75	41	51.25	145	60.42	4
Sadness and depression.	9	11.25	32	40.00	39	48.75	137	57.08	5
This color group is more suitable such as upholstery fabrics for bedroom	38	47.50	9	11.25	33	41.25	189	78.75	1
This color group is more suitable such as upholstery fabrics for living room	25	31.25	22	27.50	33	41.25	163	67.92	2
Total	183		123		254		991	68.10	

From the previous table, it is clear that:

- The second color group gives the feelings of relaxation and tranquility to 85.42% of older men, this percentage exceeds all the rest of the variables, followed by the feeling of happiness and optimism by up to 85.42%.

- There is a preference to the second color group to suit bedrooms which is up to 78.75%.

*The research results of old women's opinions in the second colorimetric group "cool colors like green, blue, and violet"

Table (5) shows the repetition, SMA, and percentage of the old women's preferences to the second colorimetric group

The Axes	Second colorimetric group								
Does this color group make you feel with?	Yes	percentage	No	percentage	To Some Extent	percentage	SMA	percentage	Ranking
Comfort and tranquility.	37	46.25	12	15.00	29	36.25	181	77.35	2
Vitality and activity.	22	27.50	23	28.75	35	43.75	159	66.25	3
Happiness and optimism.	52	65.00	9	11.25	19	23.75	203	84.58	1
Tension and nervousness.	15	18.75	27	33.75	38	47.50	148	61.67	4
Sadness and depression.	10	12.50	28	35.00	42	52.50	142	59.17	5
This color group is more suitable such as upholstery fabrics for bedroom	33	41.25	19	23.75	28	35.00	174	72.50	1
This color group is more suitable such as upholstery fabrics for living room	28	35.00	22	27.50	33	41.25	172	69.08	2
Total	177		144		224		1179	68.51	

From the previous table, it is clear that:

- The second colorimetric group gives 84.58% of old ladies the feeling of happiness and optimism, this percentage exceeds the rest of all the variables, followed by the feeling of relaxation and tranquility, which is up to 85.42%.

- There is a 72.5% of them prefer the second colorimetric group to suites bedrooms. This percentage ties and equals the percentage of older men.

3.2.3 THIRD COLORIMETRIC GROUP

* The research results of old men's opinions about the third colorimetric group "neutrals of black and shades of grey"

Table (6) Shows the repetition, SMA, and percentage of the old men's preferences to the third colorimetric group

The Axes	Third colorimetric group								
Does this color group make you feel with?	Yes	percentage	No	percentage	To Some Extent	percentage	SMA	percentage	Ranking
Comfort and tranquility.	19	23.75	30	37.50	31	38.75	149	62.08	3
Vitality and activity.	25	31.25	17	21.25	38	47.50	168	70.00	2
Happiness and optimism.	14	17.50	56	70.00	10	12.50	118	49.17	4
Tension and nervousness.	7	8.75	61	76.25	12	15.00	106	44.17	5
Sadness and depression.	33	41.25	19	23.75	28	35.00	174	72.50	1
This color group is more suitable such as upholstery fabrics for bedroom	12	15.00	21	26.25	47	58.75	151	62.92	2
This color group is more suitable such as upholstery fabrics for living room	19	23.75	27	33.75	34	42.50	152	63.33	1
Total	129		231		200		1018	60.60	

From the previous table, we find that:

- The third colorimetric group gives the feeling of sadness and depression to 72.5% of old men, this percentage exceeds all the rest of variables, followed by the feeling of vitality and activity which is by up to 70%.

- 63.33% of old people find the third colorimetric group suits living rooms.

* The research results of old women's opinion about the third colorimetric group "neutrals of black and shades of grey".

Table (7) Shows the repetition, SMA, and percentage of the old women's preferences to the third colorimetric group

The Axes	Third colorimetric group								
Does this color group make you feel with?	Yes	percentage	No	percentage	To Some Extent	percentage	SMA	percentage	Ranking
Comfort and tranquility.	42	52.50	10	12.50	28	35.00	192	80.00	1
Vitality and activity.	13	16.25	35	43.75	28	35.00	130	57.02	4
Happiness and optimism.	2	2.50	72	90.00	6	7.50	90	37.50	5
Tension and nervousness.	31	38.75	12	15.00	37	46.25	179	74.58	2
Sadness and depression.	41	51.25	26	32.50	13	16.25	175	72.92	3
This color group is more suitable such as upholstery fabrics for bedroom	7	8.75	59	73.75	14	17.50	108	45.00	2
This color group is more suitable such as upholstery fabrics for living room	22	27.50	30	37.50	28	35.00	152	63.33	1
Total	158		244		154		1026	61.48	

From the previous table, it turned out that:

- The third colorimetric group gives the feeling of relaxation and tranquility to 80.00% of old women, this percentage exceeds all the rest of the variables, followed by the feeling of sadness and depression, which is up to 74.58%.

- 63.33% of elderly women prefer the forth colorimetric group in living rooms, and this percentage is consistent with the old men's preferences.

3.3 EXPERIMENTAL STUDY

(SUGGESTED DESIGN IDEAS FOR PRINTED UPHOLSTERY FABRICS FOR THE ELDERLY'S ROOMS)

This age group required aesthetic form to the surrounding environment of the elderly. The study proceeded to propose a set of design ideas based on the preferences of color for the elderly which based on the results of the previous questionnaire and appropriate to printed upholstery fabrics for elderly rooms and contribute to achieve calm and psychological comfort.
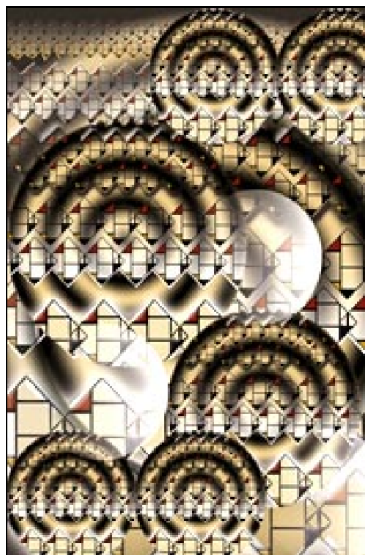
3.3.1 DESIGN IDEA NO.(1)

The design depends on repetition, which includes two directions: - First, a repetition to the diamond-shaped horizontal component border then repeated it in uneven in size from largest to smallest as it goes toward to the top of the design. Secondly, repeat the form of the circle of different sizes from largest to smallest as it goes towards the design center, which confirmed the sense of centralization and depth. So, the design includes a hidden kinetic energies, arising from the curved lines of the circles and fixed diamond-shape in the direction, which raises a sense of vitality and movement (Alsayfy, 1998, 161).

* Color: the gradient color used from dark to light in different directions, from the inside to outside and vice versa, causing a diversity of direction and gave a sense of light and shade. The color group compatible of beige and brown gives the sense of warmth and simplicity to the design which enriched the design and makes it suitable for upholstery fabrics for living rooms. Therefore the research thought that the use of the units of modern art works will be suitable to use in designing products for elderly.

Design Idea no. (1-A): This idea represents a repetition of the main design idea where the units overlap and intertwine in a way makes it is difficult to separate from the original shape and the rest of the design, which confirms the sense of cohesion, overlap, continuity and required infinity in furnishing fabrics design.
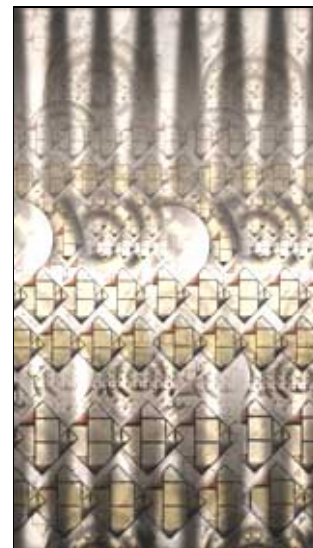
Design Idea no. (1-B):It depends on the division of design area to more than one level: A level that adjacent diamonds of the figure is distributed in regular lines repeatedly in the horizontal direction and distances almost equal. In another level, the circles differentiated repeated in the horizontal direction like strips horizontal overlapped over each other in a gradual manner to suit the functional side of the curtain fabrics.
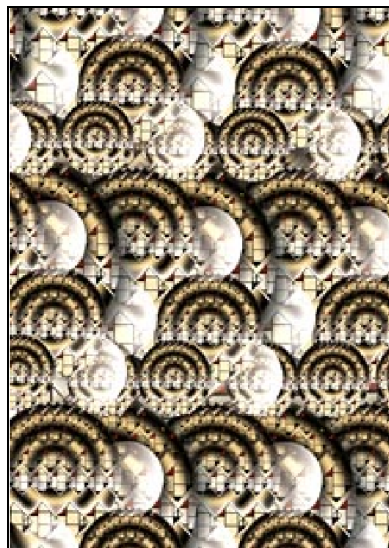
Design Idea no.(1)   *Design Idea no.(1-A)*   *Design Idea no.(1-B)*

Suggested usage.

3.3.2   DESIGN IDEA NO.(2)

The design surface is divided into two overlapping levels. The first level: the background of the work shows a group of intersecting vertical and horizontal lines to create many of the geometric shapes such as rectangles and squares, varying in size and give a variable rhythm and a sense of movement. While the other level in the front of the work shows a group of changing linear spaces up and down gives the sense of sequentially. This led to a sense of movement and transfer of vision optical viewfinder, according to this movement vertically from bottom to top. (Alsayfy 1998,172).

***Color:** Psychological studies proved that the color blue is the color of calmness, tranquility and comfort. It is preferred to use the light degree of blue in living rooms and bedrooms (Gomaa,2006,19). Statistical analysis results of the previous questionnaires show the existence of a preference for this color group by up to 82% in terms of giving the sense of comfort

and tranquility. So in this design idea color blue is used in some lines and spaces to give color lighting which make a sense of comfort and optimism.

Design Idea no. (2-A): It is a repetition to the original idea, which carries with it a set of mislead oblique strips resulting from the repetition as well as the difference in the pattern and distribution of lighting enriched the sense of diversity and preserve the sense of calm and comfort.

Design Idea no. (2-B): In this idea blue diamond was repeated in a contiguous way to make horizontal strip at the bottom of the design. The dark area at the bottom gives the sense of gravity and to suit the functional aspect of curtains fabrics.

* The design ideas have been used as upholstery fabrics for living rooms. The results of the statistical analysis of the previous questionnaire showed a preference for this color group to fit the living rooms by up to 67.50 %.
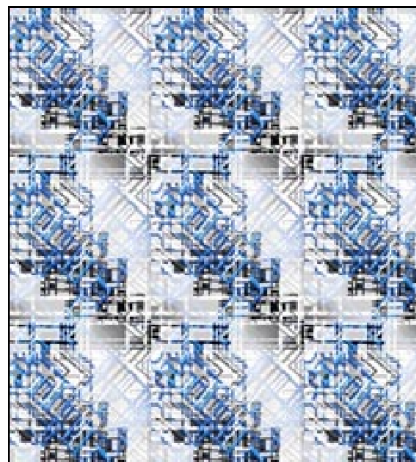
Design Idea no.(2)   *Design Idea no.(2-A)*   *Design Idea no.(2-B)*
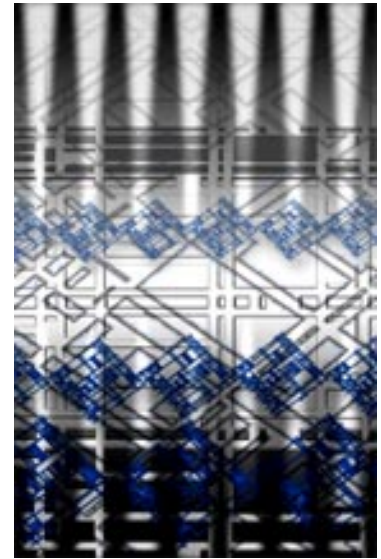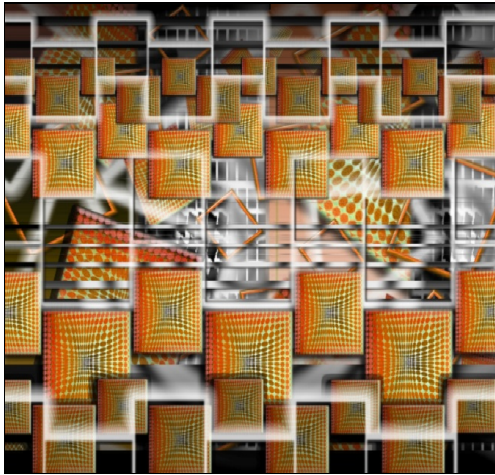

Suggested usage.

3.3.3   DESIGN IDEA NO.(3)

This idea is based on dividing the work surface is into a set of overlapping squares horizontally and vertically gradient towards the depth with different thickness of lines to bring diversity. The structural relationships of the design elements depends on the overlap and overlay relationships and the contrast between the units, which gave a sense of artwork unity (Ryad, 1969 ,319).

*Color: The choice of colors in this design depends on the results of the field study, which showed the elderly preference of violet color by up to 85% in terms of a sense of comfort, happiness and optimism. The green color is the color of nature, it gives the feeling of comfort and tranquility (Ismaeil , 2009,30). White color, black and gray are neutral colors which make shadows and necessary light to highlight the other colors.

Design Idea no. (3-A): Give the sense of extension and continuity which is required in furnishing fabric designs.

Design Idea no. (3-B): This design idea is considered as a repetition of the main idea in horizontally way component strip at the bottom of the design. This strip size is changed gradually to small as we go towards to the top of the design. This is compatible to the fact that the idea of design is employed as curtain fabrics.

* The design ideas has been employed for living rooms. The previous field study results proved that the elderly prefer violet color to suit living rooms by up to 67.50%.

Design Idea no.(3)   *Design Idea no.(3-A)*   *Design Idea no.(3-B)*
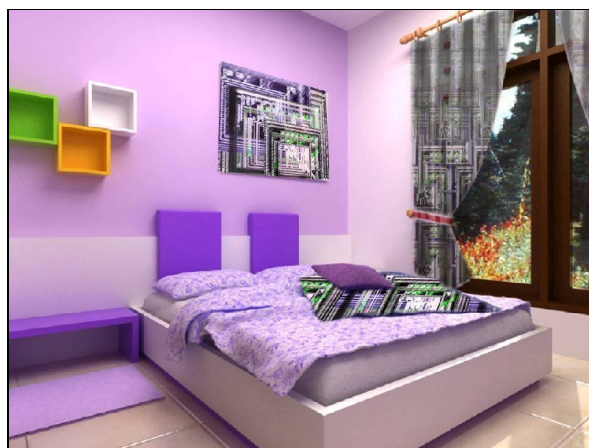
Suggested usage.

3.3.4   DESIGN NO. (4)

The basis of this work is a set of squares that are varied in size, and contains interior circular effects that move upwards and downwards in a vertical movement in the horizontal direction, which gives the illusion of over-stretching and arrangement that underscores the sense of dynamic rhythm. (Ryad 1969, 319). The relations of adjacency, interference, and overlapping organize and coordinate the elements inside the work, which helps with tightening up the design.

*Color: This design depended on the use of warm colors like orange and yellow, according to statistics they are preferable to the elderly because it give them the feeling of optimistic and happiness by 89.5% it's confirmed by researches that the orange color and all its levels helps to move the feelings, increases the heart rate, does not affect blood pressure but it gives the sense of relief and joy (Hassan 1986,180).

Design no.(4-A): This design represents a reputation to the original idea which creates levels of brightness and dark areas. Overall, the design combines movement, brightness and depth, so the movement is produced when the square rests on its axis and the diversity of squares and circle's size. The depth is illustrated by the overlapping of squares and the sense of dark and luminous emptiness, produced from the use of different levels of light and dark colors. This design can be used as printed upholstery textile.

Design no.(4-B): The surface of the design is divided into 3 vertical levels, the squares in 1st level are distributed in horizontally with big size, while the size decreases as we are headed towards the 2nd and 3rd level gradually from bottom-up to assure the center of gravity in a repeated form that gives the impression of extension and suits the nature of curtains fabrics.
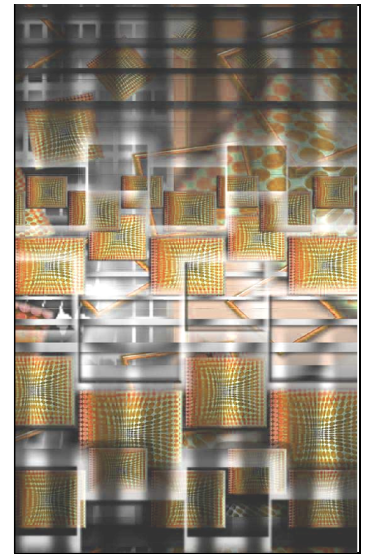
* A suggested functioning of design has been made as a furnishing fabrics for a living room , as this colored group was the most favorable to be used in living rooms for 68.8% of old ladies.
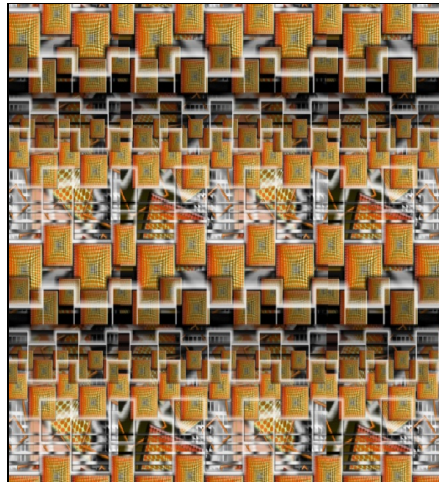
Design Idea no.(4)   *Design Idea no.(4-A)*   *Design Idea no.(4-B)*

Suggested usage.
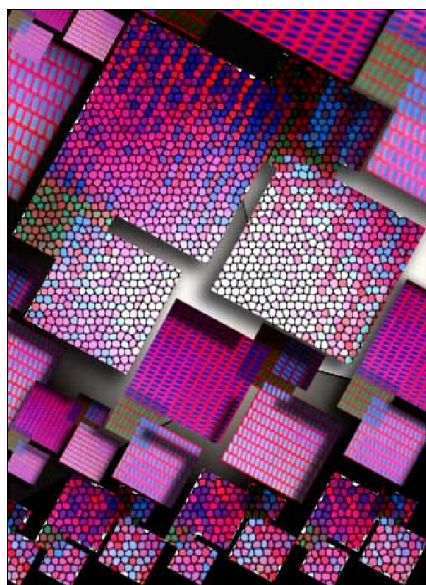
3.3.5 DESIGN IDEA NO. (5)

The building design in this idea relied on the distribution of the geometric forms, diamond-shaped, and different squares in position, direction and size which achieved variety and transition from small sizes duplicated horizontally at the bottom of the design and enlarge it gradually towards the top of the design. (Alsayfy, 1998, 87)

*Color: Shades of purple were used according to the psychological studies to the color showed that the reddish violet is a calm, moist, dreamy, and luxurious color (Ryhan 1983, 180). The blue color was also used, as the results of the previous field study confirmed the preference of cold color group (blue, green, purple) by the old people (men and women) as it gives the feeling of comfort and tranquility by up to 85.42% of men and 84.6% of women.

Design idea no. (5-A): In this idea, the units and the elements has been repeated in a horizontal sequence in different positions with equal sizes in a way that achieves toning and rhythm, the involvement of both figure and ground contributed in creating a kind of linkage, that resulted in producing an aesthetic relationship where the basic unit became integrated in the overall design, which makes it able to be a furnishing fabrics.

Design idea no. (5-B): The surface of the design was divided into horizontal levels, and repeatedly distributed in the first level, which is in the bottom of the design, it's also been repeated vertically with different sizes, smaller and smaller as we headed up, as well as progressively in the intensity of color that decrease whenever we move upwards, which gives the feeling of balance in whole design making it suitable for curtains fabrics.
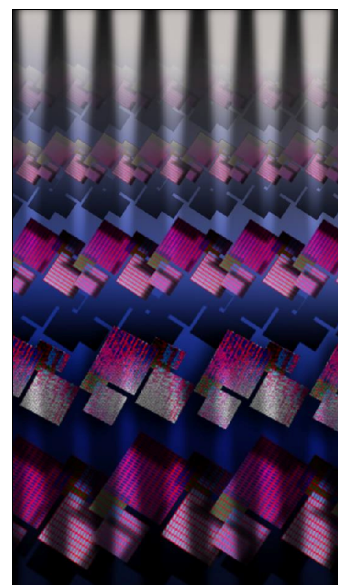
* Since the studies assured that 78.8% of the elderly men and women prefer to use purple shade and blues in their bedrooms. This proposed model represents a bedroom fits the old people.
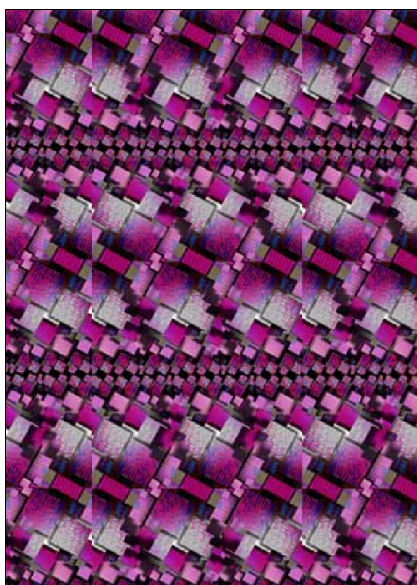
| Design Idea no.(5) | Design Idea no.(5-A) | Design Idea no.(5-B) |

Suggested usage.

3.3.6 DESIGN IDEA NO. (6)

The unit to one of the flowers that are duplicated horizontally with different sizes at the bottom of the design is the foundation of this design. Also, at the middle of the design it moves vertically from smallest to largest and surrounded by a collection of crimpy vertical lines to suggest some kind of motion. In addition to that, areas with geometric shapes like rectangles and squares had been used; this combination between organic and geometric created a kind of rhythm (Dion 1963, 259).

* Color: The red color was used in this design besides other neutral colors (white, grey, black), to achieve balance between red, that causes tension to 69.7% of men while to a 89.9% of women it gives them happiness and optimism, and neutrals that give tranquility and peace.

Design idea no. (6-A):This idea is considered as a repetition to the original one, which brings continuity and regularity and produces cross-sectioned stripes that are scalable in color, this gives the illusion of kinetic rhythm and assures the feeling of sequence and extension.

This design can work as furnishing fabrics.

Design idea no. (6-B): The design is divided into two levels, at the first level, which is at the bottom of the design, some horizontal levels were distributed containing elements of configuration in a horizontal way, and they were vertically distributed recursively to suite the nature of curtain fabrics.
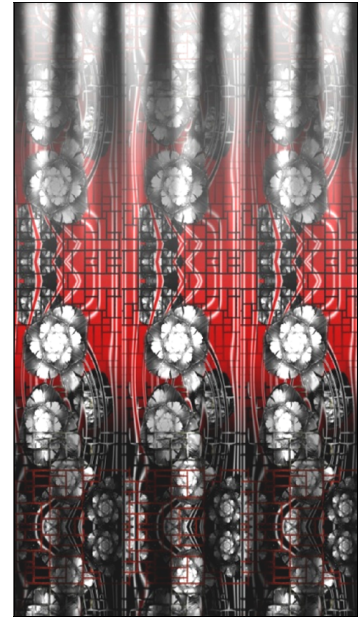
* The proposed functional usage which was tackled by the previous field study showed that there is a preference to the usage of the color red and the neutrals in the living rooms by 68.75% of old women and by 64.6% of old men.
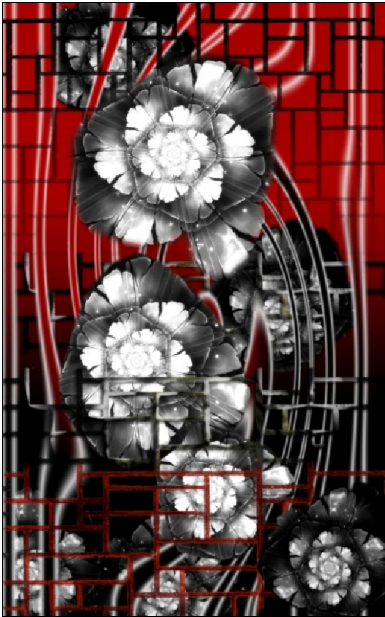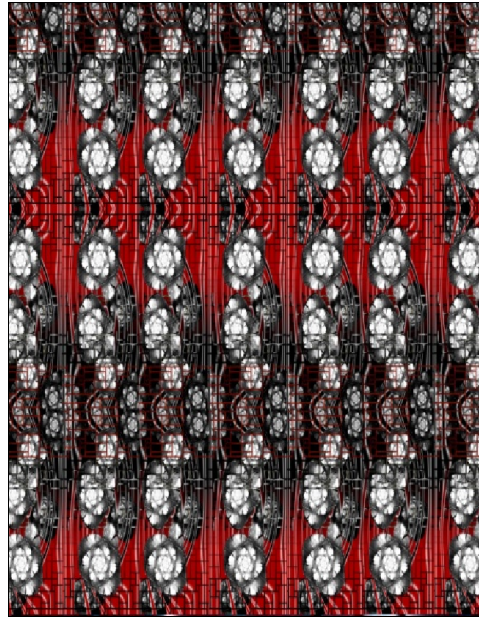
Design Idea no.(6)   *Design Idea no.(6-A)*   *Design Idea no.(6-B)*

Suggested usage.

3.3.7 DESIGN IDEA NO. (7)

The area of the work is divided to a group of circles that have inside of it a repeated cubes and different sizes of squares, connected with a group of vertical and horizontal lines creating gaps that is different sizes of rectangles, which enriched the sense of diversity without ruining the unity of the artistic work (Read 1974, 77).

* Color: This colorimetric collection is the favorite for the elderly of men, as it mix between warm colors of red, yellow, and cool blue lines, which creates an atmosphere of balance of feelings, because the yellow is full of life and joy, while the blue is full of tranquility and relaxation, and the integration between them gives comfort and harmony.

Design idea no. (7-A): This idea was a repetition to the original unit with overlapping of some circles as it thickens sometimes and diverge some other, which suggest rhythm and visual motion, and by repeating, the feeling of over-stretching and regularity, that fits the nature of furnishing fabrics, is produced.

Design idea no. (7-B): This idea used the values repetition, reduction, zooming, transparency, and scaling from the most to the least which goes along with the nature of curtain fabrics. A color and kinetic rhythm was caused by the recurrence of

pedestrians and the repetition of vertical lines, where the idea of rhythm in feeling is linked with the successive movement that limits monotony (Ghorab, 69).
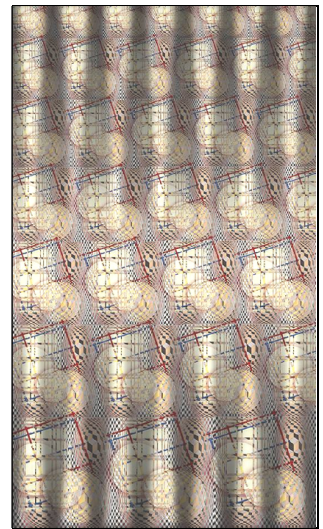
* The proposed functional model for curtains, furnishing fabrics and hanging in the elderly's living room, shows that the color collection that includes the red and orange are the most preferable by the old people in the living rooms.
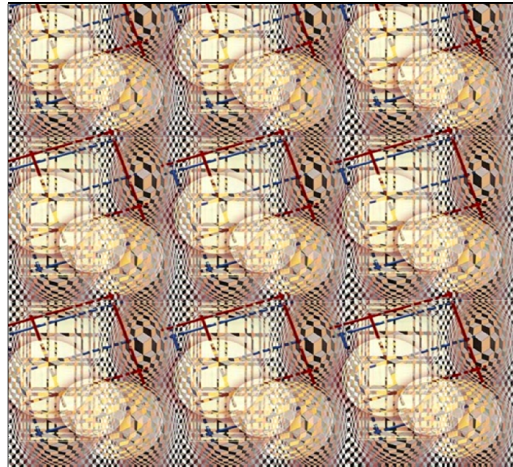
Design Idea no.(7)	*Design Idea no.(7-A)*	*Design Idea no.(7-B)*

Suggested usage.

3.4   THE POST STUDY RESULTS

(THE STATISTICAL ANALYSIS TO THE DESIGN IDEAS)

The statistical analysis to the data, which had been obtained through the post questionnaire that is specifically designed for this purpose of the study, demonstrated that the specified colors, and the superposition designs received a huge preference by many of the old to use them in their furnishing rooms, as it been proved that it is acceptable to great extent. Although it's not possible to measure how calm it is, it is clear that it is comfortable, and gives the feeling of calmness and relaxation, which is enough to satisfy the purpose of the study.

Table (8) Shows the percentages of the two samples concerning the study of the design ideas' preferences

The Axis	Design idea no (1)		Design idea no (2)		Design idea no (3)		Design idea no (4)		Design idea no (5)		Design idea no (6)		Design idea no (7)	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
The appropriate of design elements with age group of the elderly.	82%	89%	87%	82%	90%	91%	91%	89%	88%	85%	92%	90%	90%	89%
The appropriate of units organization within the design.	84%	88%	89%	81%	90%	94%	93%	90%	90%	85%	95%	95%	93%	90%
The color harmony in the design idea.	87%	89%	88%	83%	90%	94%	92%	88%	91%	85%	96%	96%	91%	90%
The achievement of calm and comfortable feeling.	82%	89%	87%	83%	92%	90%	94%	93%	92%	85%	95%	95%	90%	93%
The achievement of excitement and attract attention.	84%	88%	87%	87%	90%	89%	92%	87%	88%	88%	95%	94%	90%	90%
The achievement of excellence and modernity.	85%	91%	88%	82%	88%	88%	90%	84%	90%	89%	90%	92%	90%	90%
The appropriate of design idea to the suggested usage.	88%	92%	83%	85%	88%	91%	88%	92%	92%	89%	93%	90%	92%	96%

4 CONCLUSION

1- The use of the statistical approach in the previous study contributes in the identification of the preferences color groups in the elderly. The statistical analysis of the previous opinion questionnaires showed the following:

- There are essential differences and statistically significant in "color" preferences between elderly male and female. Warm color groups are more colors favored by elderly female where they rise the feeling of happiness and optimism by 89.58%, followed by the sense of comfort and peace of mind by 71.67% compared to the elderly males whom warm colors raise stress and nervousness by 69.58%. As opinion varied on the possibility of the use of warm colors in the living rooms or bedrooms.
- There are preferences for each of the "cool colors from the rest of color preferences for each sample of men and women. It gives the sense of happy, optimism, comfort and tranquility.
- A statistically significant for cool degrees of color groups preference for employ in upholstery's textile designs for the bedroom for each of the men and the female sample.
- A statistically significant preference for neutral color groups for employment such as the textile fabrics for the living room for both men and female sample.

2- The statistical analysis of the data obtained through a questionnaire designed specifically for the purpose of this study showed that designs' color are much preferred by the elderly and suitable for their suggested usage even for bedrooms or living rooms. When employed in their accommodation upholstery they have proven to be acceptable to a great extent. The extent of their tranquility could not be measured, however their statement of being comfortable or feel, relaxed, calm, or restful has been enough to satisfy the justifications of the study.

5 RECOMMENDATIONS

It's important to increase the interest in scientific researches that focus on the age group of the elderly, to increase the cultural awareness. It's also important to study their art needs to enrich the field of printed fabric designs to suit the nature of their age.

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