Analytical Study for Relation of Artistic Color Harmony Theories and Color Harmony Software

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Abstract

The most common standard used in graphics is the CIE XYZ color space, consisting of spectral curves known as the standard observer or color matching functions; it is preferred over alternate CIE spaces for its nice numerical properties. The curves x-y and z of the CIE standard observer provide a standardized way of converting spectral radiance (L) to a trichromatic color space.

The designer must know well the properties of color to can deal with it and get him the best results are those characteristics in the three dimensions of color which enables us to measure color and identified more accurately and more professional .

Research problem: confusion between the artistic theories and the options in graphic software which Suggests color harmony to use in the design

Research aim: The research aims to study and analyze the relation between color harmony depends on artistic theories and color harmony depends on graphic software.

Study the effect of the use of scientific and practical rules that can be operated from which graphic designer a way and software depends on color matching functions.

Research method The researcher used both of description and analytical methods for collecting data about color harmony by using artistic theories and color harmony by using graphic software compare between them and analysis the results.

Harmonic colors are color combinations that have special internal relationships that are aesthetically pleasing to the human eye. Professional designers experienced in color theory can create color palettes that evoke different moods, appropriate to the product or service being sold.

To find the best harmonic scheme of colors that matches the basic color in design, the algorithm iterates over all the harmonic templates at optimum angles to find the one that best fits the color So the designer first finds the closest harmonic template for example complementary I-type template to the hue histogram. It then shifts the hues to match the template sectors Users can manually rotate the template to select other color combinations.

The designer should cares and assisted in all theories harmony works chromatography because it will reduce the time to reach a good design and more popular.

The color harmony software depends on the artistic color theories the easiest of using color harmony software made design process more efficiency and more quality Color harmony software reduced the differences between designer's views Color harmony software reduced the experience condition to produce good design

Keywords

color harmony, color wheel, basic color, artistic color harmony, color harmony rules

Introduction

The color enchants our eyes and affects our impressions, and people at the general level love some colors and hatred of others, where the color affects the sense of texture and imagine taste, where color is the language of the language of understanding and linguistic dialogue between all races and peoples Harmonic colors are those that have an aesthetic effect when viewed together. Since ancient times, the study of color harmony theories has been closely studied in the physical nature of light and color. In many color space, the harmony of colors depends on the relative position of the colors in the color space. In 1905, the artist Albert H. Monsell's Color System The Munsell system for identifying and studying colors is important regardless of whether it is old because it is based on human perception. In addition, it is designed before making tools available for measuring and determining color. Munsell sets numeric values for the three color properties: hue, value, and chroma. Similar color samples represent equal periods of visual perception

Research problem

Confusion between the artistic theories and the options in graphic software which Suggests color harmony to use in the design

Research aim

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Study the effect of the use of scientific and practical rules that can be operated from which graphic designer a way and software depends on color matching functions

Research limit

The research limit is the common graphic design software in Egyptian market
(Adobe Illustrator)

Research method

The researcher used both of description and analytical methods for collecting data about color harmony by using artistic theories and color harmony by using graphic software comparing between them and analyzing the results.

Literary Survey

The designer should know the color characteristics that he can handle and get the best results. These are the three dimensional dimensions of the color that enable us to measure and specify the color more accurately and professionally.

It is important to note that Color Psychology largely depends on the cultural background of the observer. Even in the same country, there are different meanings for the same colors.

Each color has its own distinct appearance, which depends on three elements: hue, chroma and value (lightness). By describing a color using these three attributes, you can select a specific color accurately and distinguish it from any other color.

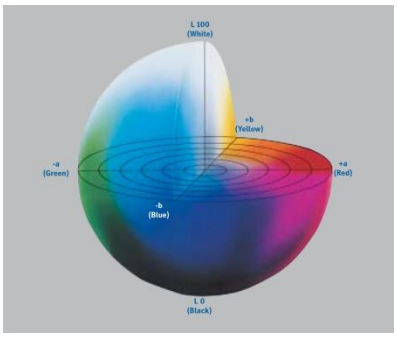
Hue: When you are asked to determine the color of an object, you will probably first talk about its color. Quite simply, gradient is how to perceive object color - red, orange, green, blue, and so on.

Chroma: Chroma describes the vitality or color of the color - in other words, how close the color is either to gray or pure color. For example, consider the appearance of tomatoes and radish. The red of tomatoes is lively, while the radish looks faint.

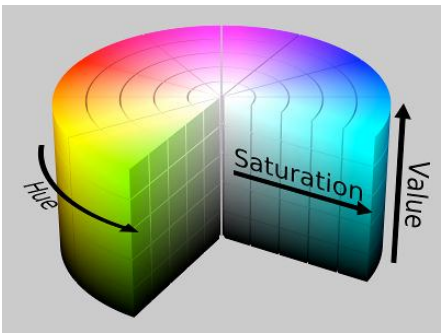
Lightness: The intensity of the luminous color - the degree of lightness - is called value. Colors can be classified as light or dark when compared to their value.

CIE Color Systems: The CIE, or Commission Internationale de l'Eclairage (translated as the International Commission on Illumination), is the body responsible for international recommendations for photometry and colorimetry. In 1931 the CIE standardized color order systems by specifying the light source (or illuminants), the observer and the methodology used to derive values for describing color. The CIE Color Systems utilize three coordinates to locate a color in a color space. These color spaces include:

• CIE XYZ • CIE L*a*b* • CIE L*C*h°



CIE L*a*b* **diagram**



H*S*V* **diagram**

Color harmony

Harmonic colors are color combinations that have special internal relationships that are aesthetically pleasing to the human eye. Professional designers experienced in color theory can create color palettes that evoke different moods, appropriate to the product.

Color harmonization is usually a manual affair based on experience and intuition, assisted by color pickers and tools. A tool that automatically enhanced the color harmony of an image would speed up the design process and allow exploration of different alternatives including combining different colors into design.

A) Classification of software color harmony rules

1. complementary group

Complementary colors are hues that are opposite one another on the color wheel.

There can be examined two different types of harmonies/contrast: ones that take into consideration only disposition of hues each other and others that account exact hue values and their influence on the human perceiving.

Hues located directly opposite each other on color wheel. Has contrast and sense of action; introduces both warm and cool colors. Create better harmony if one of the colors is lowered in value or intensity there are five different types of complementary harmony

a) Complementary1 b) Complementary2 c) split complementary d) right complementary

e) Lift complementary

2. Analogous group

Analogous hues can be defined as groups of colors that are adjacent on the color wheel; contain two, but never three primaries and have the same hue dominant in all samples there are two different types of analogous harmony

a) analogous1 b) analogous2

3. Mono chromatic group

These compositions use one hue, and image is built on the base of varying of lightness of color. These images are used to suggest some kind of emotion since every hue bears specific psychological intensity there are two different types of mono chromatic harmony

a) Mono chromatic1 b) Mono chromatic2

4. Shades

As a special case, images composed by black, grays and white tones or contain colors with very small saturation.

5. Triad Group

Three colors that are equidistance on the color wheel form triad. This means that all colors are primary or secondary, or intermediate there are three different types of triad harmony

a) Triad1 b) Triad2 c) Triad3

6. Tetrad Group

The tetrad includes four colors in equidistance on the color wheel. This contrast produces very complicated scheme there are four different types of tetrad harmony

a) Tetrad1 b) Tetrad2 c) Tetrad3

7. Compound Group:

When more than two colors take part in the composition the harmonic disposition suggests combination between analogous and complementary hues there are two different types of compound harmony

a) Compound1 b) Compound2

8. High Contrast Group

The whole effect of the lightness of the image as well as light-dark contrast is a very powerful tool in art mastering. Mainly, an artwork can not contain light-dark contrast – at that case the image has one integral vibration of the lightness. In other case sharp light-dark contrast is used to focus the attention in exact points of the image there are four different types of high contrast harmony

a) High Contrast1 b) High Contrast2 c) High Contrast3 d) High Contrast4

9. Pentagon

The pentagon includes five colors in equidistance on the color wheel. This contrast produces very complicated scheme.

B) Artistic color harmony rules

There are a lot of kinds of artistic color harmony it depends on the culture of the designer and environment so we can fined different in the meaning of colors and the relation between colors so we take some of this rules as sample

Powerful: Strong colors require not only your attention, but their reward. From bright happiness to warm emotion, the emotions are used by these colors revolve around getting a well-known notice. They are unambiguous vitality and self-knowledge of young people.

Rich: Trust and dark, the forms that evoke richness are a step towards black color. Deep tones that convey less power can also convey riches. They talk about wealth and the power of reason, patience,

Romantic: pink and red, as well as peach, lavender, gentle yellow, and green of flower stalks are the most obvious color of romance. Soft pastel tones of blues and gray up shape in the palette as well.

Earthy: dyed desert, fresh fruits and vegetables, simple nature is the color that represents the colors of the earth itself. From the warmth of the red earth to turquoise to the sun in the golden field of wheat, the earth's colors show a reliable power and a simple life. Use attractive, rich earth colors that impart similar qualities to themes

Friendly: Turquoise shapes combined with deep orange and purple, inspired by the Southwest United States. A specific place by the warm sun and welcoming people. Without optimism, these vibrant and visual colors extend an invitation to passers-by.

Soft: the dye of warm peach and orange, flooded with lighting, come to you quietly. Such as a perfect sun-filled kitchen full of fresh food colors reminiscent of slow Sunday marches. The easy cheerfulness of these colors evokes the sweetness of fresh fruit nectar.

Welcoming: Perhaps the yellow and amber orange was the most welcoming color. Forward and trust, they have inherent brilliance. When aligned with their supplements, they convey happiness and strength.

Elegant: pale color of yellow and purple, lightweight and light-filled, paints a palette of elegance that conveys the state. From thin yellow and light yellow to orange brown, these are the colors of purification.

Trendy: These colors can be paired with dark colors for great effect, alone can feel like natural colors enhanced to a new level. From pink grapefruit to red brick, from lavender to eggplant, from celery to green pepper, these trendy colors attract attention. Pale yellow, cold

Refreshing : relief from dry landscapes; antidote to refreshing colors gives respite from the heat of the scorching sun. The light green and lining are colored when they are paired with orange red.

Tropical: The calmness between blue to warm turquoise colors and the warmth of yellow to red reflects the soothing and refreshing tropical green colors. Yellow and bright red, but quiet. The ease and comfort of defining the tropics as well as colors.

Classic: Blue is the backbone of those classic colors. As the name con notes, it is strong and trustworthy. Along with its partners in the classical field, it transmits power and power.

Calm: These are the colors we turn to when we need a place to rest our minds. Peace reigns when we are surrounded by shades of blue.

Regal: Strong and deeply saturated colors, Regal colors stand on the strength of blue color mixed with red power. The deep purple we think of as a royal contribution identifies this group. When combined with its complement, orange yellow, it makes a strong combination and visually grip.

Energetic : So vital by themselves - especially when their supplements are coupled with these vibrations. They have electricity, and their loud personalities require attention. It identifies people, places and events that embody the celebration,

Subdued: Defeated. These shapes do not contain bioenergy colors, but are a step down in brightness, even if they are slightly gray. They lack active color contrast. But the faint colors are not quite harsh: they come back to life when combined with a more vivid tone or tone of the original class. Although they do not require attention

Professional: These approaches are translated into gray and tonal tones. But professional colors are not just gray; reds, greens, teals, blues, purples and even play a role in this painting

Pure. White is not the absence of color but the presence of all colors. Often think it is normal, nothing, white clean. White is good. White without vacuum. White is quiet

Graphic: Graphic: No color orders are respected like black. It is simple on the outside but it is silently complicated and the river still runs deep. Nothing beats the attractiveness of a small black dress. And what can catch your attention

Experimental Work

When we make the research we observed that all studies before explain the mathematical relation between color and we found its very complicated for the designer to release that mathematical relations so we found geometrical relation on color well is more simply so we studied the geometrical relation as shown below

Software and Tools We used certain software adobe illustrator with its color tools in our experiments. The basic color and harmonious color were chosen according to the Color Wheel system adobe using the Color Wheel harmonic combination of colors according to the L*A*B color system So designer first finds the closest harmonic template according to the design plan and suggests the first color he well use it well be the main color in design. The designer can manually rotate the template to select other color combinations

- ## First Experiment

In the first experiment we used 23 color harmony theories in the software adobe illustrator and we suggested the main color and we got the related color according to the color harmony we used after that we changed the main color and we fixed the color harmony rule and we got again the related color we mad that test 23 times in every time we change the color harmony rule at the end we got 46 results for the first experiment

- We compared between two results for the same software color harmony rule
- We compared between results for all software color harmony rule

- ## Second Experiment

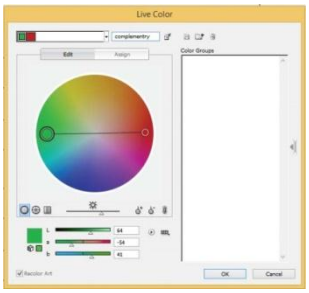
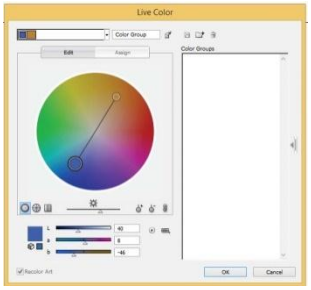
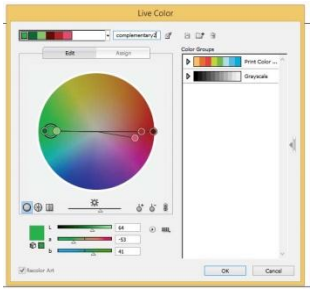
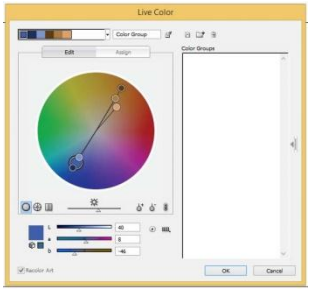
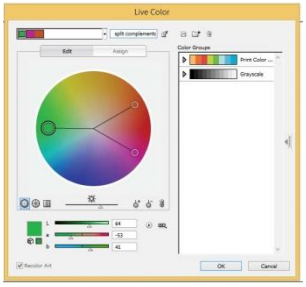
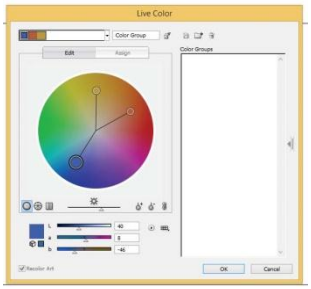
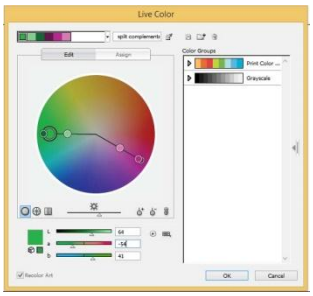
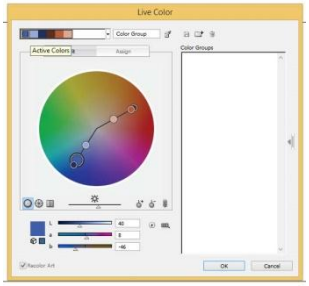
In the second experiment we used 21 color harmony theories of artistic theories. in this theories we suggest the all colors that well be used in design and we got the L*A*B* for every color from the pallet we suggested and we got the diagram of color well for every pallet. after that we suggested another color pallet for every color harmony artistic rule and we got the diagram color well for everyone. at the end we got 42 results for the second experiment

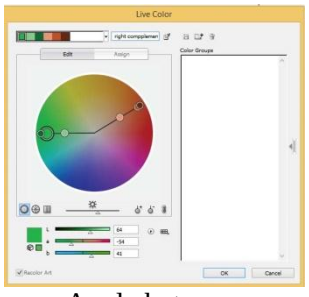
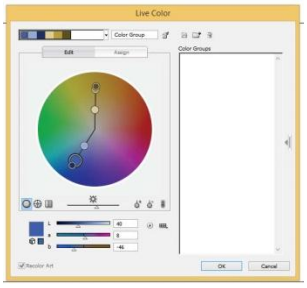
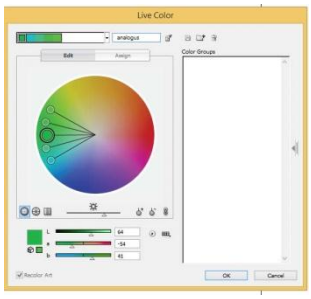
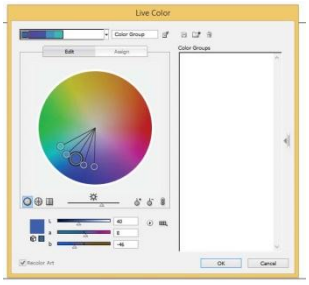
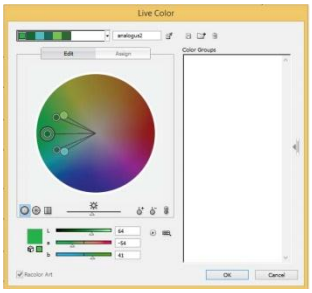
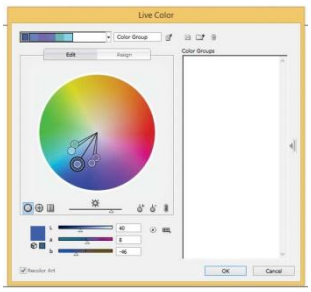
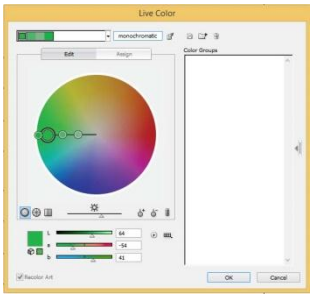
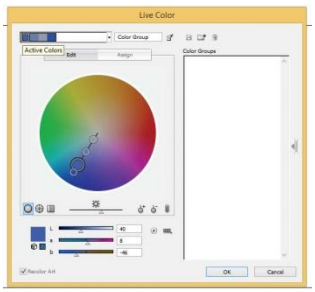
- We compared between two results for the same artistic color harmony rule
- We compared between results for all artistic color harmony rule

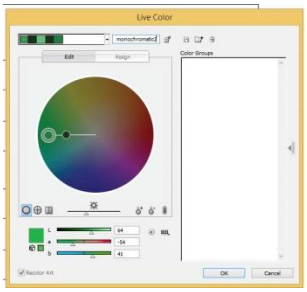
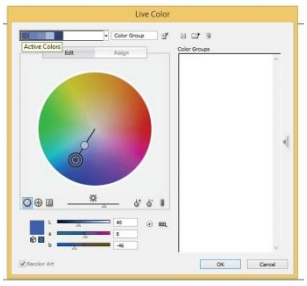
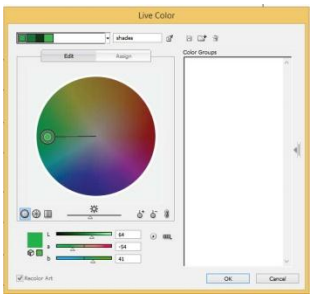
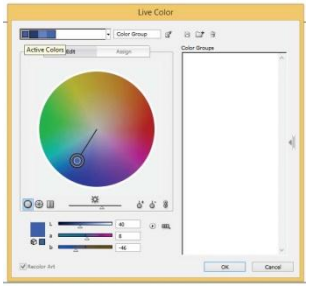
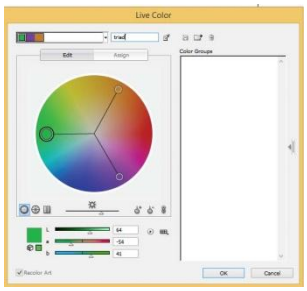
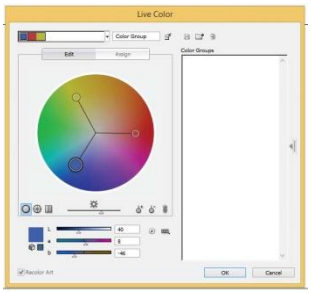
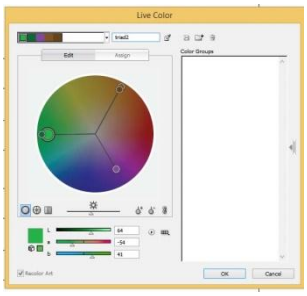
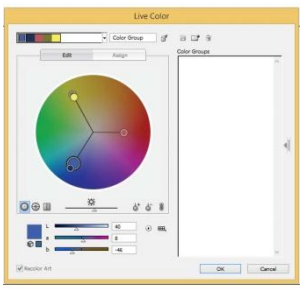
Experimental Results

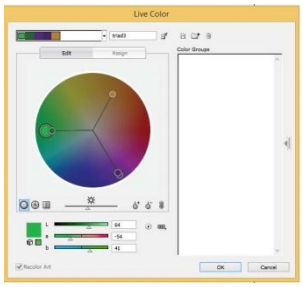
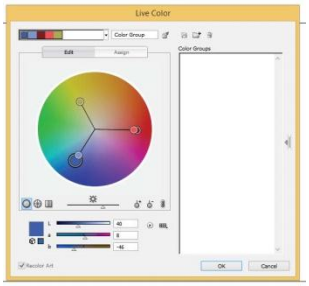
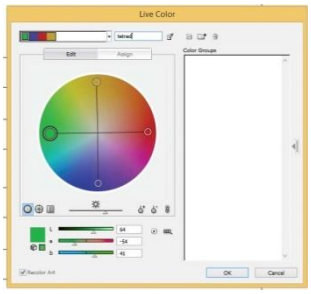
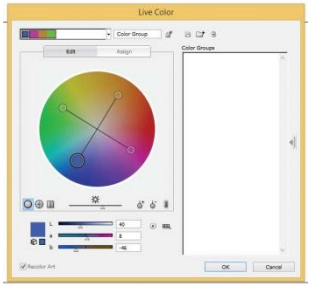
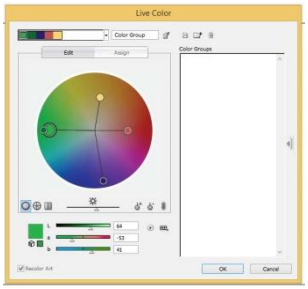
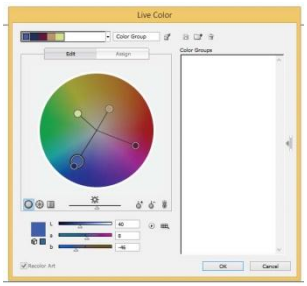
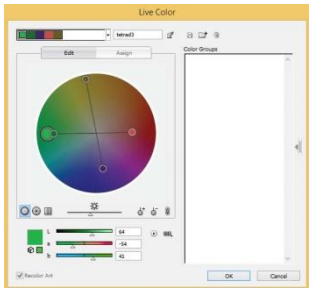
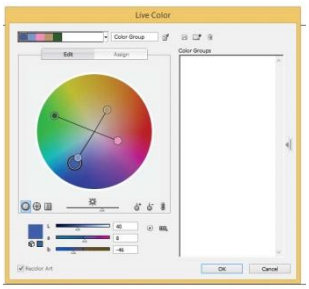
Note that we will refer to the main color by (M) and we will order the color by number (C1-C2-C3 etc) and the direction order will by CW direction and we will refer to the relation between angles when we refer to range change of angles

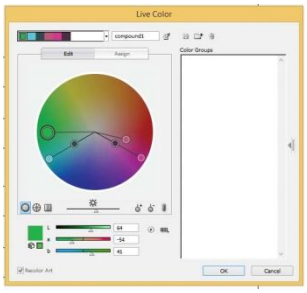
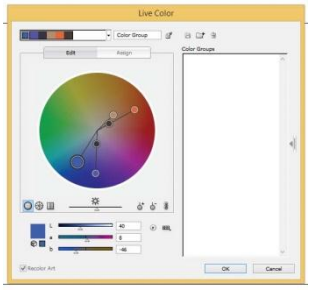
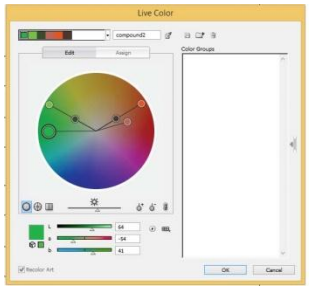
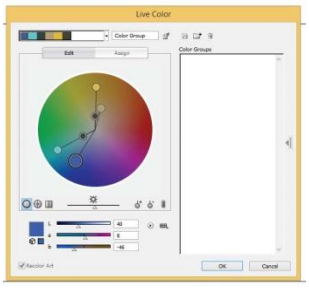
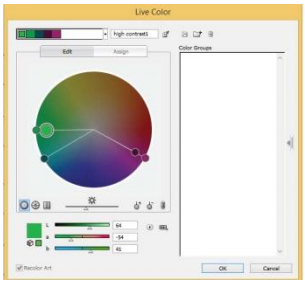
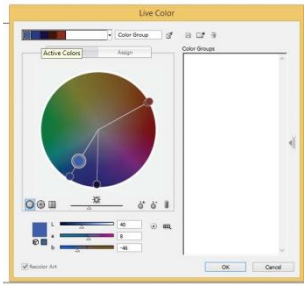
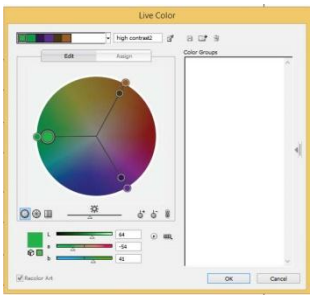
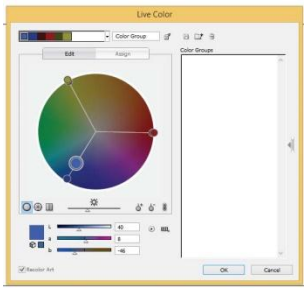
Table 1: Experimental Results software color harmony

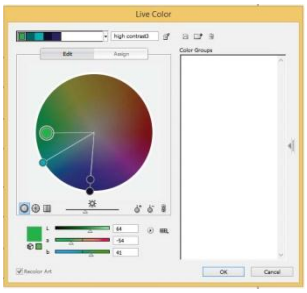
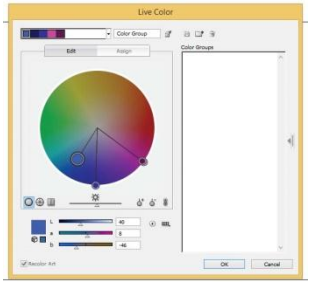
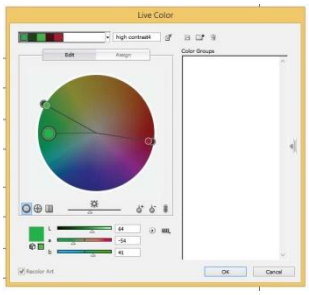
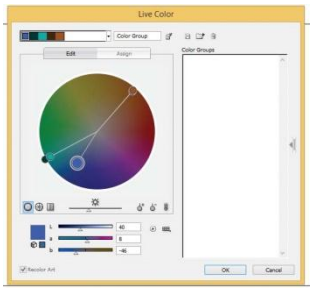
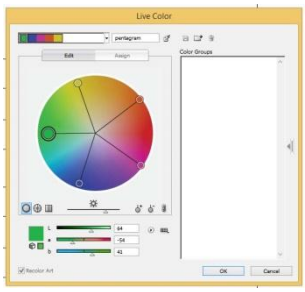
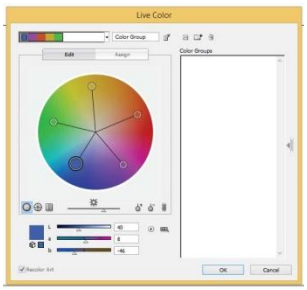
Complementary		**complementary2**	
Model1  Angle between (M)&C1 (180)	**Model2**  Angle between (M)&C1 (180)	**Model1**  Angle between (M)&C1 = (0) (M)&C2 = (0) (M)&C3 = (180) (M)&C4 = (180) (M)&C5 = (180+15) - C1&C2 on the same axe of C1 with shift - C3&C4 on the same axe of C3 with shift	**Model2**  Angle between (M)&C1 = (0) (M)&C2 = (0) (M)&C3 = (180) (M)&C4 = (180) (M)&C5 = (180+15) - C1&C2 on the same axe of C1 with shift - C3&C4 on the same axe of C3 with shift
Split complementary		**Lift complementary**	
Model1  Angle between (M)&C1 = (150)	**Model2**  Angle between (M)&C1 = (150)	**Model1**  Angle between (M)&C1 = (0)	**Model2**  Angle between (M)&C1 = (0)

(M)&C2 = (150+60)	(M)&C2 = (150+60)	(M)&C2 = (0) (M)&C3 = (210) (M)&C4 = (210) (M)&C5 = (210) - (M)&C1&C2 on the same axe of (M) with shift - C3&C4&C5 on the same axe of C3 with shift	(M)&C2 = (0) (M)&C3 = (210) (M)&C4 = (210) (M)&C5 = (210) - (M)&C1&C2 on the same axe of (M) with shift - C3&C4&C5 on the same axe of C3 with shift
Right complementary		**Analogus1**	
Model1  Angle between (M)&C1 = (0) (M)&C2 = (0) (M)&C3 = (150) (M)&C4 = (150) (M)&C5 = (150) (M)&C1&C2 on the same axe of (M) with shift C3&C4&C5 on the same axe of C3 with shift	**Model2**  Angle between (M)&C1 = (0) (M)&C2 = (0) (M)&C3 = (150) (M)&C4 = (150) (M)&C5 = (150) (M)&C1&C2 on the same axe of (M) with shift C3&C4&C5 on the same axe of C3 with shift	**Model1**  Angle between (M)&C1 = (15) (M)&C2 = (15+15) (M)&C3 = (15+15+320) (M)&C4 = (15+15+320+15) (M)&C5 = (15+15+320+15+15)	**Model2**  Angle between (M)&C1 = (15) (M)&C2 = (15+15) (M)&C3 = (15+15+320) (M)&C4 = (15+15+320+15) (M)&C5 = (15+15+320+15+15)
Analogus2		**Mono chromatic1**	
Model1  Angle between	**Model2**  Angle between	**Model1**  Angle between	**Model2**  Angle between

(M)&C1 = (0) (M)&C2 = (20) (M)&C3 = (20+10) (M)&C4 = (20+10+300) (M)&C5 = (20+10+300+10) (M)&C1 on the same axe of (M) with shift	(M)&C1 = (0) (M)&C2 = (20) (M)&C3 = (20+10) (M)&C4 = (20+10+300) (M)&C5 = (20+10+300+10) (M)&C1 on the same axe of (M) with shift	(M)&C1 = (0) (M)&C2 = (0) (M)&C3 = (0) (M)&C1&C2&C3 on the same axe of (M) with shift Depend on change of value of S*	(M)&C1 = (0) (M)&C2 = (0) (M)&C3 = (0) (M)&C1&C2&C3 on the same axe of (M) with shift Depend on change of value of S*
Mono chromatic2		**Shades**	
Model1	**Model2**	**Model1**	**Model2**
 Angle between (M)&C1 = (0) (M)&C2 = (0) (M)&C3 = (0) (M)&C4 = (0) (M)&C1&C2&C3&C4 on the same axe of (M) with shift Depend on change of value of S*&B*	 Angle between (M)&C1 = (0) (M)&C2 = (0) (M)&C3 = (0) (M)&C4 = (0) (M)&C1&C2&C3&C4 on the same axe of (M) with shift Depend on change of value of S*&B*	 Angle between (M)&C1 = (0) (M)&C2 = (0) (M)&C3 = (0) (M)&C1&C2&C3 on the same axe of (M) with shift Depend on change of value of B*	 Angle between (M)&C1 = (0) (M)&C2 = (0) (M)&C3 = (0) (M)&C1&C2&C3 on the same axe of (M) with shift Depend on change of value of B*
Triad1		**Triad2**	
Model1	**Model2**	**Model1**	**Model2**
 Angle between	 Angle between	 Angle between	 Angle between

(M)&C1 = (120) (M)&C2 = (120)	(M)&C1 = (120) (M)&C2 = (120)	(M)&C1 = (0) (M)&C2 = (120) (M)&C3 = (120) (M)&C4 = (120+120) (M)&C1 on the same axe of (M) with shift C2&C3 on the same axe of C2 with shift	(M)&C1 = (0) (M)&C2 = (120) (M)&C3 = (120) (M)&C4 = (120+120) (M)&C1 on the same axe of (M) with shift C2&C3 on the same axe of C2 with shift
Triad3		**Tetrad1**	
Model1  Angle between (M)&C1 = (0) (M)&C2 = (120) (M)&C3 = (120+120) (M)&C4 = (120+120) (M)&C1 on the same axe of (M) with shift C3&C4 on the same axe of C3 with shift	**Model2**  Angle between (M)&C1 = (0) (M)&C2 = (120) (M)&C3 = (120+120) (M)&C4 = (120+120) (M)&C1 on the same axe of (M) with shift C3&C4 on the same axe of C3 with shift	**Model1**  Angle between (M)&C1 = (90) (M)&C2 = (90) (M)&C3 = (90)	**Model2**  Angle between (M)&C1 = (90) (M)&C2 = (90) (M)&C3 = (90)
Tetrad2		**Tetrad3**	
Model1  Angle between	**Model2**  Angle between (M)&C1 = (0)	**Model1**  Angle between	**Model2**  Angle between

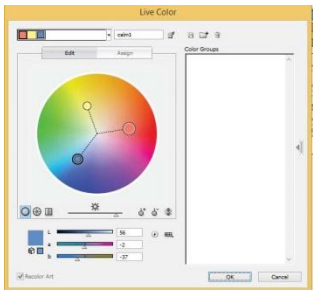
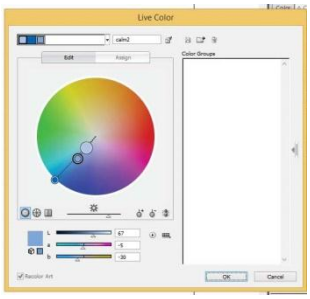
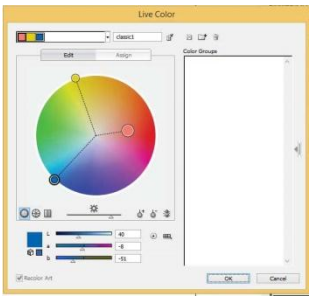
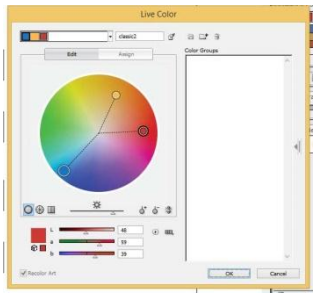
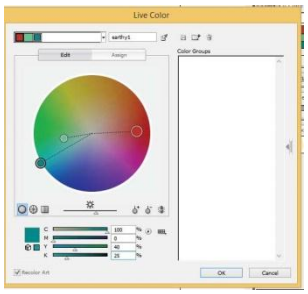
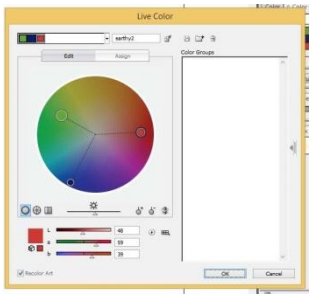
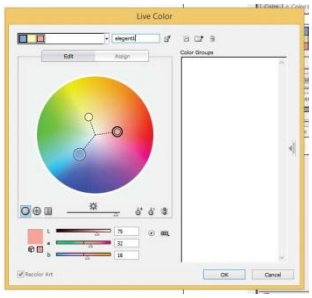
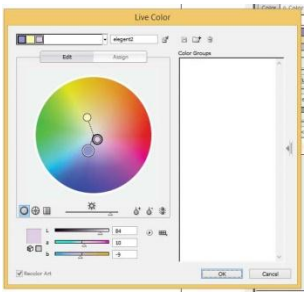
(M)&C1 = (0) (M)&C2 = (100) (M)&C3 = (100+80) (M)&C4 = (100+80+100) (M)&C1 on the same axe of (M) with shift	(M)&C2 = (100) (M)&C3 = (100+80) (M)&C4 = (100+80+100) (M)&C1 on the same axe of (M) with shift	(M)&C1 = (0) (M)&C2 = (80) (M)&C3 = (80+100) (M)&C4 = (80+100+80) (M)&C1 on the same axe of (M) with shift	(M)&C1 = (0) (M)&C2 = (80) (M)&C3 = (80+100) (M)&C4 = (80+100+80) (M)&C1 on the same axe of (M) with shift
Compound1		**Compound2**	
Model1  Angle between (M)&C1 = (195) (M)&C2 = (195+15) (M)&C3 = (195+15) (M)&C4 = (195+15+120) (M)&C5 = (195+15+120) (C2)&C3 on the same axe of (C2) with shift (C4)&C5 on the same axe of (C4) with shift	**Model2**  Angle between (M)&C1 = (195) (M)&C2 = (195+15) (M)&C3 = (195+15) (M)&C4 = (195+15+120) (M)&C5 = (195+15+120) (C2)&C3 on the same axe of (C2) with shift (C4)&C5 on the same axe of (C4) with shift	**Model1**  Angle between (M)&C1 = (30) (M)&C2 = (30) (M)&C3 = (30+120) (M)&C4 = (30+120) (M)&C5 = (30+120+15) (C1)&C2 on the same axe of (C1) with shift (C3)&C4 on the same axe of (C3) with shift	**Model2**  Angle between (M)&C1 = (30) (M)&C2 = (30) (M)&C3 = (30+120) (M)&C4 = (30+120) (M)&C5 = (30+120+15) (C1)&C2 on the same axe of (C1) with shift (C3)&C4 on the same axe of (C3) with shift
High contrast1		**High contrast2**	
Model1  Angle between	**Model2**  Angle between	**Model1**  Angle between (M)&C1	**Model2**  Angle between (M)&C1

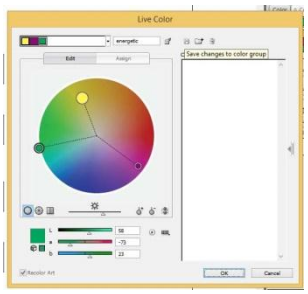
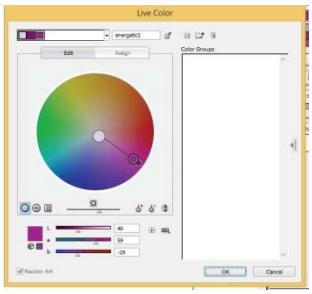
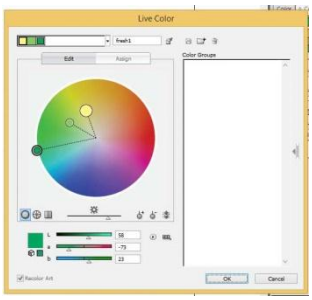
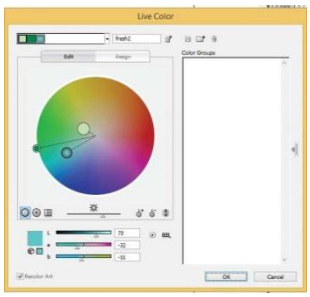
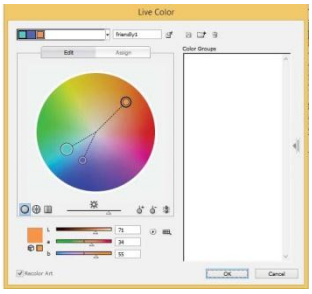
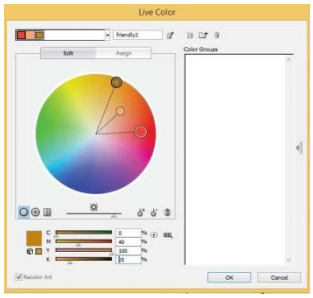
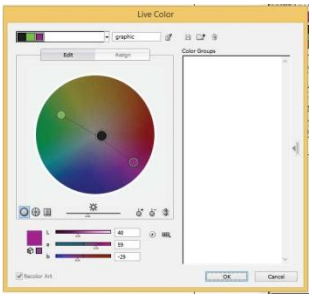
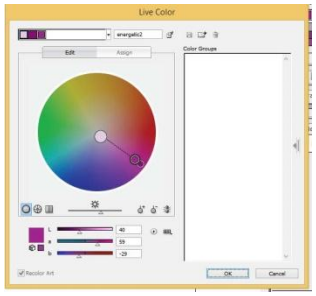
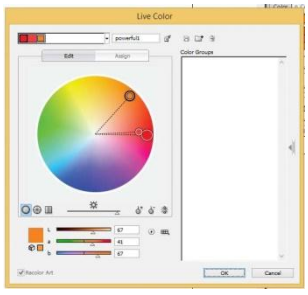
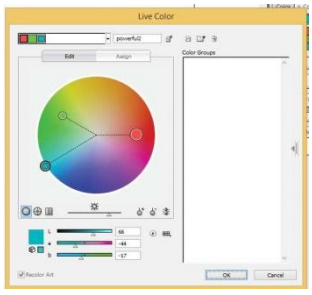
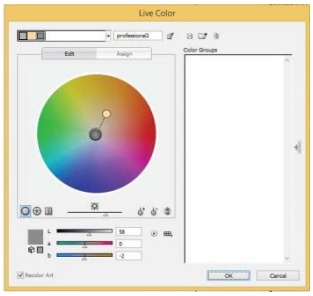
(M)&C1 = (0) (M)&C2 = (210) (M)&C3 = (210) (M)&C4 = (210+210) (M)&C1 on the same axe of (M) with shift C2&C3 on the same axe of C2 with shift	(M)&C1 = (0) (M)&C2 = (210) (M)&C3 = (210) (M)&C4 = (210+210) (M)&C1 on the same axe of (M) with shift C2&C3 on the same axe of C2 with shift	= (0) (M)&C2 = (120) (M)&C3 = (120) (M)&C4 = (120+120) (M)&C5 = (120+120) (M)&C1 on the same axe of (M) with shift C2&C3 on the same axe of C2 with shift C4&C5 on the same axe of C4 with shift	= (0) (M)&C2 = (120) (M)&C3 = (120) (M)&C4 = (120+120) (M)&C5 = (120+120) (M)&C1 on the same axe of (M) with shift C2&C3 on the same axe of C2 with shift C4&C5 on the same axe of C4 with shift
High contrast3		**High contrast4**	
Model1	**Model2**	**Model1**	**Model2**
 Angle between (M)&C1 = (270) (M)&C2 = (270) (M)&C3 = (270+60) (M)&C4 = (270+60) (C1)&C2 on the same axe of (C1) with shift C3&C4 on the same axe of C3 with shift	 Angle between (M)&C1 = (270) (M)&C2 = (270) (M)&C3 = (270+60) (M)&C4 = (270+60) (C1)&C2 on the same axe of (C1) with shift C3&C4 on the same axe of C3 with shift	 Angle between (M)&C1 = (30) (M)&C2 = (30) (M)&C3 = (30+160) (M)&C4 = (30+160) (C1)&C2 on the same axe of (C1) with shift C3&C4 on the same axe of C3 with shift	 Angle between (M)&C1 = (30) (M)&C2 = (30) (M)&C3 = (30+160) (M)&C4 = (30+160) (C1)&C2 on the same axe of (C1) with shift C3&C4 on the same axe of C3 with shift
Pentagram			
Model1	**Model2**		
 Angle between (M)&C1 = (72)	 Angle between (M)&C1 = (72)		

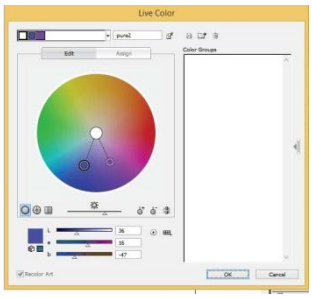
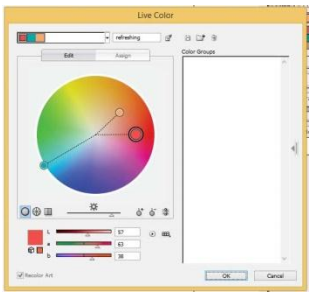
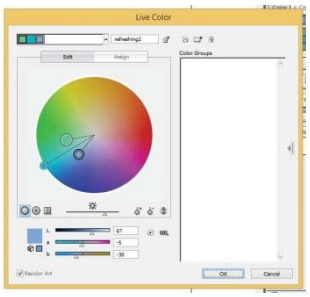
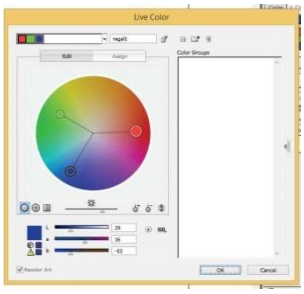
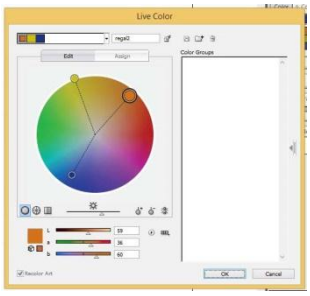
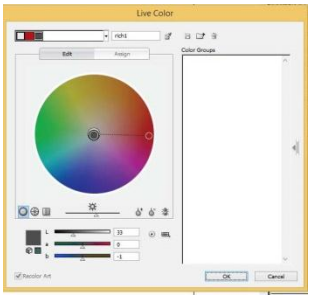
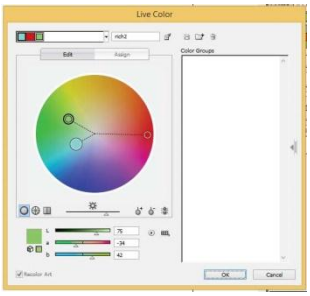
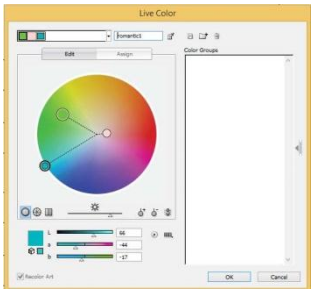
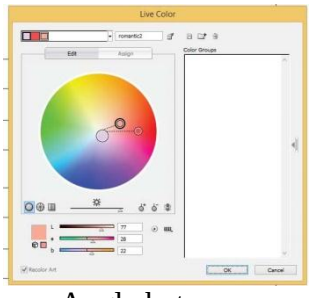
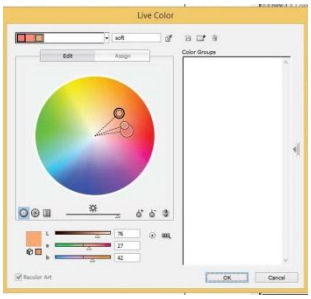
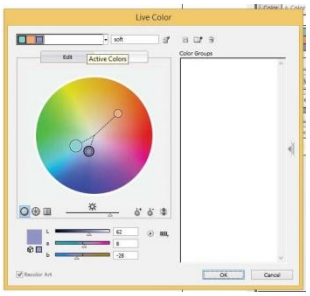
(M)&C2 = (72+72) (M)&C3 = (72+72+72) (M)&C4 = (72+72+72+72)	(M)&C2 = (72+72) (M)&C3 = (72+72+72) (M)&C4 = (72+72+72+72)		

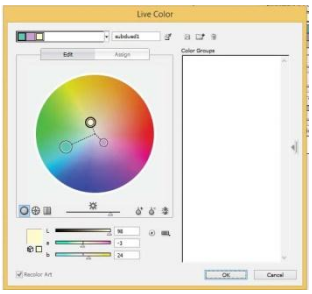
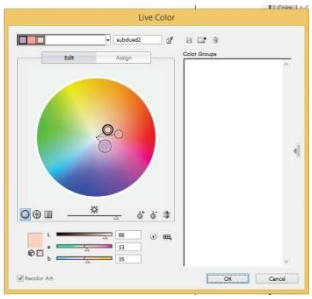
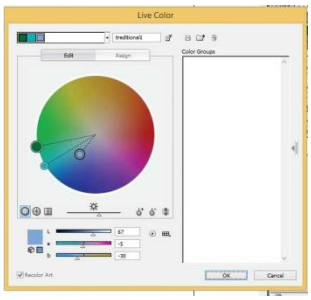
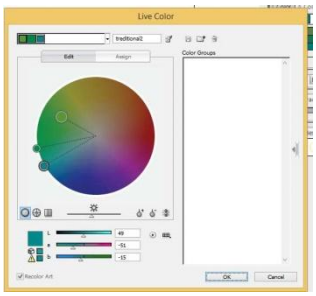
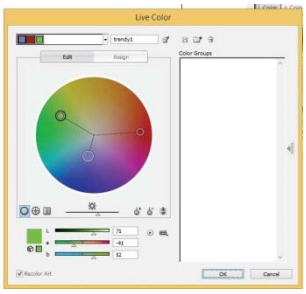
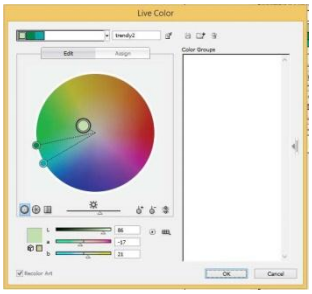
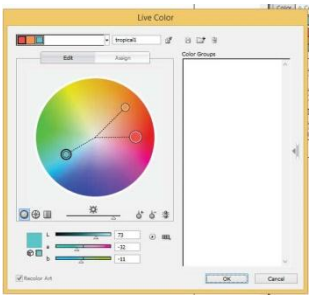
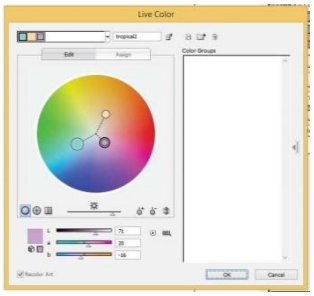
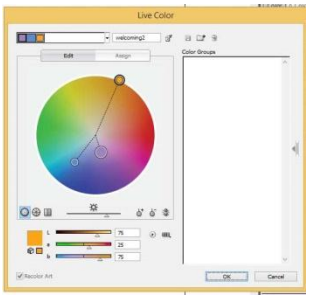
Final results there is geometrical relation between color in software color harmony rules when we change the main color in every rule the geometrical relation steel as it is

Table 2: Experimental Results artistic color harmony

Calm		Classic	
Model 1	**Model 2**	**Model 1**	**Model 2**
			
Angle between (M)&C1 = (135) (M)&C2 = (135+125)	Angle between (M)&C1 = (0) (M)&C2 = (0)	Angle between (M)&C1 = (140) (M)&C2 = (140+120)	Angle between (M)&C1 = (160) (M)&C2 = (160+65)
Earthy		**Elegant**	
Model 1	**Model 2**	**Model 1**	**Model 2**
			
Angle between (M)&C1 = (150)	Angle between (M)&C1 = (150)	Angle between (M)&C1 = (120)	Angle between (M)&C1 = (140)

(M)&C2 = (150+20)	(M)&C2 = (150+120)	(M)&C2 = (120+100)	(M)&C2 = (140+160)
Energetic		**Fresh**	
Model 1  Angle between (M)&C1 = (145) (M)&C2 = (145+135)	**Model 2**  Angle between (M)&C1 = (0) (M)&C2 = (0)	**Model 1**  Angle between (M)&C1 = (280) (M)&C2 = (40)	**Model 2**  Angle between (M)&C1 = (300) (M)&C2 = (300+20)
Friendly		**Graphic**	
Model 1  Angle between (M)&C1 = (160) (M)&C2 = (160+160)	**Model 2**  Angle between (M)&C1 = (295) (M)&C2 = (295+25)	**Model 1**  Angle between (M)&C1 = (0) (M)&C2 = (175)	**Model 2**  Angle between (M)&C1 = (0) (M)&C2 = (155)
Powerful		**Professional**	
Model 1  Angle between (M)&C1 = (310)	**Model 2**  Angle between (M)&C1 = (150)	**Model 1**  Angle between (M)&C1 = (0)	**Model 2**  Angle between (M)&C1 = (0)

(M)&C2 = (310+45)	(M)&C2 = (150+60)	(M)&C2 = (0)	(M)&C2 = (0)
Pure		**Refreshing**	
Model 1  Angle between (M)&C1 = (0) (M)&C2 = (170)	**Model 2**  Angle between (M)&C1 = (0) (M)&C2 = (45)	**Model 1**  Angle between (M)&C1 = (150) (M)&C2 = (150+170)	**Model 2**  Angle between (M)&C1 = (320) (M)&C2 = (320+20)
Regal		**Rich**	
Model 1  Angle between (M)&C1 = (125) (M)&C2 = (125+90)	**Model 2**  Angle between (M)&C1 = (170) (M)&C2 = (170+130)	**Model 1**  Angle between (M)&C1 = (0) (M)&C2 = (0)	**Model 2**  Angle between (M)&C1 = (55) (M)&C2 = (55+155)
Romantic		**Soft**	
Model 1  Angle between (M)&C1 = (140)	**Model 2**  Angle between (M)&C1 = (340)	**Model 1**  Angle between (M)&C1 = (325)	**Model 2**  Angle between (M)&C1 = (165)

(M)&C2 = (140+155)	(M)&C2 = (340+20)	(M)&C2 = (325+25)	(M)&C2 = (165+155)
Subdued		**Traditional**	
Model 1  Angle between (M)&C1 = (155) (M)&C2 = (155+110)	**Model 2**  Angle between (M)&C1 = (35) (M)&C2 = (35+55)	**Model 1**  Angle between (M)&C1 = (340) (M)&C2 = (340+20)	**Model 2**  Angle between (M)&C1 = (300) (M)&C2 = (300+20)
Trendy		**Tropical**	
Model 1  Angle between (M)&C1 = (105) (M)&C2 = (105+145)	**Model 2**  Angle between (M)&C1 = (300) (M)&C2 = (300+15)	**Model 1**  Angle between (M)&C1 = (150) (M)&C2 = (150+165)	**Model 2**  Angle between (M)&C1 = (145) (M)&C2 = (145+110)
Welcoming			
Model1  Angle between (M)&C1 = (0)	**Model 2**  Angle between (M)&C1 = (60)		

(M)&C2 = (25)	(M)&C2 = (60+165)		

Final result there is geometrical relation between color in software color harmony rules but when we change the main color in every rule the geometrical relation changes completely

Conclusions

1- Selection main color depends on the designer. it depends on the main idea which he want send to the customer and select the rule of color harmony too
2- Artistic color harmony differ completely from designer to another because it depends on the culture environment and designer concepts so using artistic color harmony differ from designer to another
3- The relation between software color harmony rules depends on mathematical rules so every designer will get the same results so using software color harmony well not differ from designer to another because the relation between color in the software don't differ and Color harmony software reduced the experience condition to produce good design
4- The designer should cares and assisted in all theories harmony works chromatography because it will reduce the time to reach a good design and more popular.
5- The color harmony software depends on the artistic color theories.
6- The easiest of using color harmony software made design process more efficiency and more qualified.

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