

The Role Of The Computer In Activating Rhythmic Systems To Enrich The Movement As An Aesthetic Value In The Calligraphic Artwork

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Abstract

The current research attempts to experiment with employing the technical capabilities of the Photoshop program to enrich the dynamic movement in the calligraphy design, as an aesthetic value and an important visual influence, by creating various rhythmic systems and employing them to achieve this goal.

The research uses the experimental Approach through a self-experiment of designing and executing innovative calligraphic artworks, in which the various plastic values, especially the value of dynamic movement, stand out.

The most important results of the study are that: The use of computer techniques in employing rhythmic systems helps to enrich the dynamic movement and highlight it as an aesthetic value in the calligraphic artwork. In addition, the diversity in formulations and methods of employing rhythmic systems within the calligraphic artwork contributes greatly to enriching the aesthetic aspect of the design through the effectiveness of the dynamic movement of the lettering elements.

Keywords: calligraphy, computer techniques, rhythm, movement

With the end of the twentieth century, many artists tended to link with technology and employ its capabilities and use its modern tools to create their artwork, which gave them opportunities to come up with new and innovative plastic formulations with distinct artistic characteristics, in addition to gaining ease in performance methods and high speed in implementing and completing different techniques with artistic work

Many artists have resorted to using the computer as a creative means, and as a tool for research and experimentation to discover all the various possibilities, it provides that can be employed to serve their goals. Among these movements the "Calligraphism". This appeared as a new artistic trend in the eighties, its artists tried to provide their motifs (writing letters) with wide plastic capabilities of formation, composition, and creation of innovative and expressive formations on different surfaces, especially after the great development in graphic software and printing technology.

(Movement) is one of the important artistic foundations that must be achieved in visual art, as it achieves the visual tension factor that raises the interest of the recipient and pushes him to examine the artwork in sequential and continuous steps, and thus movement in visual art can be considered an important attraction element affected by its The ability to arouse the eye and the mind to suggest movement that comes in the mind through the eye and the imagination.

From this point of view, the current research attempts to experiment with employing the technical capabilities of the Photoshop program to enrich the dynamic movement in the calligraphy artwork, as an aesthetic value and an important visual influence, by creating various rhythmic systems and employing them to achieve this goal.

RESEARCH PROBLEM:

The research problem is determined by the following main question:

- How can the computer be used to employ rhythmic systems to achieve dynamic movement as an aesthetic value in calligraphy artwork?

Research hypotheses:

- The dynamic movement in the calligraphy artwork can be enriched by employing the capabilities of the computer to create and employ rhythmic systems.

Research aims:

1. Shedding light on the importance of movement as an artistic aesthetic value and an important visual attraction in the plastic arts.
2. Employing rhythmic systems to achieve and enrich the dynamic movement as an aesthetic value in the calligraphy artwork.
3. Revealing innovative plastic formulations for calligraphy artwork designs using computer programs.

Research importance:

1. Directing the attention of designers and art students towards the plastic and technical capabilities of computer programs and their role in diversifying artistic production and directing it towards development and keeping pace with scientific and technological progress.
2. To highlight the role of divergent creative thinking in achieving and developing artistic creativity.

Research limits:

The research is limited to the production of calligraphy artworks based on separate Arabic letters as motifs for formation, and experimentation is also limited to the implementation of works using Photoshop as a digital medium by taking advantage of its various plastic tools and capabilities.

Research Methodology:

The current research follows two approaches:

- The descriptive approach: in collecting and organizing the research literature included in its theoretical framework.
- Experimental approach: through the self-artistic experience of designing and implementing innovative calligraphy artworks in which the various plastic values, especially the value of dynamic movement (the subject of the study), must be confirmed and enriched by employing the capabilities of the computer represented by the (Photoshop) program.

Research terms:

• Movement:

The movement expresses an action that involves change and is offset by a reaction that does not have to be in the form of a tangible movement, but may be internal in the form of a feeling" (Riyadh, 1974).

• Dynamic:

According to the Wikipedia encyclopedia, dynamics is : "a branch of applied mathematics that is concerned with the study of forces and moments and their effect on the motion of bodies, or in other words studies motion and its causes, in contrast to abstract kinetics, which studies motion only without taking its causes into consideration." (wikipedia.org)

• Calligraphy:

"Artistic movement that dealt with language as letters or as texts to give a visual element in the formation. The calligraphy is the drawing that made the letter a source of inspiration and a subject that the artist is interested in expressing. The letter occupied the interest of many Arab artists to produce new solutions by employing it within the artwork to highlight the aesthetic values and the expressiveness of this letter". (Wager, 1990)

THEORETICAL FRAMEWORK:

A. calligraphism as a contemporary art movement:

Calligraphism is an abstract trend in modern art, which appeared around the eighties, in which the artist used letters, words, and sometimes numbers and some symbols as plastic elements, it appeared as a new artistic trend through which the Arab artist tried to root and confirm his own local identity, in light of the tyranny of incoming cultures and the blind imitation of Western artistic trends and the stagnation and decline in the creative process that caused the artist and the Arab connoisseur's sense of dependency and alienation.

At the same time, the motifs of the art of calligraphy (Arabic letters of writing) provided wide plastic capabilities of formation and composition and the creation of innovative and expressive formations on the surfaces of paintings, walls, models, ceramics, and others.

The decorative givings were closely associated with Arabic calligraphy and the Arabic language, integrated with it, and took its way to more than one artist, applied and architectural achievement.

Now the arena of all Arab and Islamic plastic arts with varying rhythms of presence and action, various forms, formulations, and methods of treatment, in which a large number of Arab plastic artists, practitioners, decorators, calligraphers, and architects are working today.

B. the Arabic letter as a figurative motif:

The letters of the Arabic language have endless figurative capabilities. Its letters are distinguished by the smooth flexibility of the artist's hand and mind, to the greatest extent due to their elongation, shortening, reclining, buttocks, sending, cutting, returning and plural, which are not available in any of the fonts in other languages.

These features made Arabic calligraphy shine in the center of the world of plastic art, and it has its artists, creators, and students in all fields of plastic creativity." (Mohamed, 1998)

The letters of Arabic writing also enjoy the vitality of movement and the potential energy in each letter separately, as these letters contain spaces and lines that lead the eye of the viewer to move with them and explore the relationships of the lines, their heights, their depressions, their stillness, their movement, their impulses, and their fulcrum points, And the relationship of the flowing lines to each other, which form and determine the plastic structure of the artwork and the space that these relationships produce and the movement resulting from it.

All these capabilities, features, and formal characteristics of the Arabic letters made them a pliable and inspiring material that occupied the interest of most Arab artists and calligraphers throughout the artistic eras. Some Western artists even drew inspiration from them in their works due to the unique abilities they found in them in processing and formation.

C. Movement as an aesthetic value in the visual arts:

"Movement in art has become the element that determines the launch of artistic work from one point to another, and many attempts have been made to introduce a sense of movement into the various artistic schools" (Abdel-Moneim and others, 1977).

The movement of the visual stimulus in the fields of visual arts is one of the most interesting characteristics, as the individual often tends to respond to moving stimuli more than his response to fixed stimuli. Therefore, many modern art schools have been interested in movement as an aesthetic value that has an important role in enriching artwork.

Among those schools, for example, are the school of optical illusion, and the school of Art Nouveau, whose artists reflected the effectiveness of movement by using lines, as they made it in their works a vital line with movement and an indication of activity and change, and they considered the line an important basis in their style.

The artists of the (Art nouveau) School emphasized through their works the need to give the artwork the sensitivity of movement, and this means giving the rhythm of each line such as its direction, movement, and inclination, rather than showing the forces inherent in it so that the line is considered one of these elements expressing the dynamic forces within the form that will help it to His realization of the principle of movement in the work of art, They also emphasize the presence of rhythm in the lines of the artwork, as the different, confused or skewed lines, as well as mixed with the details of the basic design of the external lines, help to quickly express the different contrasts of what is intended to be achieved on the surface of the design, and on the other hand, the horizontal lines rushing at excessive speed and flowing It is what confirms the emotion and thus move in the artwork." (Sulaiman, 2013)

Al-Rubaie- indicates that "it can be inferred that movement in art is of two types:

- Objective (real) movement: It is related to the three-dimensional arts, in which light is essential in the illusion of movement, and the body is formed in this type of movement over an angle of 360 degrees.
- Illusory (unreal) movement: It is related to the two-dimensional visual arts.

The current research deals with the delusional movement as an aesthetic value in calligraphy artwork by clarifying its concept, its causes, and how to employ it effectively within the calligraphic artwork. (Al-Rubaie, 1999)

D. The delusional movement and its relationship to the dynamism of the artwork:

Vision is the best means of perception, through which we can obtain different patterns of shape and color. Through it, we notice the sequence, movement, and change within the space of visual art, If, for example, the focus is given to the visual works of the artist (Vasarelli), then its colors will seem to move, some of them as if they move forward, oscillate forward, and other colors regress, and sometimes they move in a circular or spiral direction, and so on from directions. This kind of kinetic illusion is produced when separate and non-moving effects are presented to us in succession, generating an optical illusion that shows that the shape that contains a color has moved from its place to the next place, and thus is established resulting from the movement in which the illusion of the recipient's sight.

The delusional movement is mental because it is the product of the awareness of the mind, and the shapes seem to move or change despite their stillness in reality, and the movement in them is fixed, and its occurrence is just an illusion, and this type of movement is an essential part of visual art as it conveys the impression of vitality and excitement to its fixed units, as It is necessary to give effects within its prescribed space, as well as being an important attraction that adds interest towards it.

The delusional movement is subject to deductive processes between the elements of the form, as the viewer's vision of this type of work provokes his emotional effects while following the rhythmic-kinetic system resulting from mental perception. By placing the viewer and his vision generated by the energy of the void trapped between the elements.

It can be inferred that what moves in visual art is the result of the suggestion of movement and its illusion, and it is inevitably linked to the relationships that compose it and result from the effects of divergence, convergence, contact, juxtaposition, conflict or overlap between the forms that include its constituent elements. Most of the inclusion of movement that occurs in visual art is caused by our memory, our experience, and what we have learned in life, the mind develops the information it receives from living perceptions depending on personal factors such as experience, cultural inventory, psychological and physiological factors". (Knobler, 1992).

There are the primary characteristics of specific types of movement that can be illusion achieved through the multiple building elements, which comes the first color, and can arouse them through his structural systems, in the light of which the vision of the recipient moves through his relationships with the various means of organization that lead the sight towards it The determined and then its movement from one space location to another, which gives the kinetic character of the visual work, which came mainly to give the illusion of the movement that the recipient imagines.

Al-Bazzaz identified the types of delusional movements as follows:

- Movement in and out.
- Internal axial movement.
- The attractive movement towards the inside and the opposite movement towards the outside.
- Connected and discrete movements.
- Directional or multi-directional movements.
- The movement towards the center or outside the circumference.
- Movement forward or backward.
- A movement toward the top or towards the bottom. (Al-Bazzaz, 1997)

E. Rhythm as a field to achieve movement in the calligraphic artwork:

"Rhythm in a multiplicity is a term that means the frequency of movement regularly that combines unity and change, so the rhythm suggests the periodic law of the aspects of life and the awareness of features of rotating tensions that give the individual the feeling of the necessity of having a law for any regular intellectual chain that earns it clear affirmation, sobriety, and balance". (Myers, 2002)

Life and the universe in all its manifestations are subject to two main factors: movement and change, which represent the basic feature that governs the regularity of relationships and shapes in nature or works of art. The dynamism, diversity, and aesthetics of proportion are based on balance within the design system. (Shawki, 2005)

Rhythm is also a process of organizing the separations between the units of the artwork, and these separations may be between points, lines, spaces, shapes, colors, or by arranging their degrees or organizing the directions of the elements of the artwork. Rhythm expresses movement and is achieved by repeating shapes without a mechanism and using artistic elements.

The types of rhythm are:

- **Monotonous rhythm:** It is the one in which all units and distances are completely similar in all respects, and the units in which rhythm is formed are repeated regularly without any difference .
- **Decreasing and increasing rhythm:** The spaces in it gradually decrease with the stability of the distances between them, or the distances decrease with the stability of the area of the units and the distances gradually decrease together, while the opposite is in the increasing rhythm and this depends on the side from which we look at the units and their repetition systems.
- **Free rhythm:** In which the form of units differs from each other completely, and the distances differ from each other completely and faithfully. Organizational templates.

In addition, some sub-values highlight rhythm such as:

• Rhythm through repetition:

Repetition confirms the direction of the elements and the awareness of their movement, and usually, the artist resorts to dealing with groups of elements that may be lines, arcs, triangles, squares, or groups of different or gradual color, and repetition in this sense refers to the manifestations of extension and continuity associated with achieving movement on the surface of the two-dimensional design.

• Rhythm through gradation:

Rhythm organizes the intervals through two important elements: periods - and shapes. Fast rhythms are associated with short periods between shapes, while slow rhythms are associated with long periods or spaces between shapes.

• Rhythm through diversity;

Every artistic work must depend on achieving change and rhythmic toning so that the work does not lose its unity, meaning this diversity is based on a kind of organization to preserve unity, repetition, and diversity as characteristics that are inseparable in building an expressive artwork.

• Rhythm through continuity:

Continuity is an essential characteristic that distinguishes rhythm and achieves coherence based on the repetition of shapes within the design, The character of continuity is a common denominator that gives unity its diversity, gradation earns its regularity, and the work as a whole gives the character of interdependence between its parts. (Shawki, 2005).

From the foregoing, it can be said that the delusional movement and its feeling can be achieved through the product of the color contrasts, their contradictions and gradations that have been achieved, and the result of the relationship between the part and the other part, and between the whole and the part, and through changes in the colors of its parts that make up the process of visual art, and through a certain rhythm The eye can move between them and perceiving the illusion of movement, which is an active generator that lies within the structure of its system.

In light of this, the researchers believe that it can be inferred that movement, as a formative value and an important visual influence, can be controlled intensely within its spaces in a manner consistent with the desired goal, by employing the different rhythmic systems that help to achieve that goal.

PRACTICAL FRAMEWORK:

• The capabilities of the computer as a mediator in enriching the movement of the lettering board:

The importance of the computer has increased over the years and it has become one of the mainstays on which art education is based to keep pace with scientific and technological progress, as the computer is characterized by its advanced and multiple capabilities that help artistic creativity and development through its various programs that allow the artist to perform various artistic operations and manipulations.

The computer can develop the idea of a single designer into thousands of ideas, as it works to arouse his intellectual fluency during his practice of the process of artistic creativity, in addition to the ability of the computer to provide alternatives and solutions and achieve infinite formulations of the elements, in addition to its infinite accuracy in formulating shapes, which allows achieving configurations that contain relationships Overlay, transparency, and overlap elements to produce a web of lines, high-resolution colors, and detail.

The use of computers in art achieves many goals, the most important of which are:

1. The computer produces an infinite variety of shapes and colors.
2. The computer satisfies the desire for creativity.
3. The computer encourages the mind to work in a renewable manner according to its capabilities. (Suleiman, 2013)

Photoshop is one of the most famous digital programs in design and image processing because of its wide popularity due to its huge capabilities that have served and still the vast majority of artists and graphic designers around the world, and also because it is subject to continuous development and modernization by the producing company to keep pace with the new and meet the growing requirements of artists and users from Amateurs and professionals. There are many unlimited possibilities of Photoshop, which calligraphy designers can employ, including, for example:

1. Endless color choices, in addition to the possibility of achieving unlimited color variations and gradations.
2. Correcting errors in letter extensions, flexibility, and font paths.
3. Performing permutations and combinations to create combinations of letters in a short time and in various forms that achieve kinetic dynamism.
4. The possibility of rebuilding, organizing, and arranging the design elements as a whole.
5. Take advantage of the list of built-in writing fonts to integrate more than one type of font to serve the design.
6. Applying various filters to add effects such as shadow, highlight, and anthropomorphism to some letters.
7. Create digital wallpapers with high-resolution and quality color effects.
8. Create and edit various curved and straight linear paths to serve formation and confirmation of movement.
9. The possibility of employing editing tools to achieve formal manifestations that suggest movement within the design for motif and letter formations such as perspective, tilt, zoom, rotation, and others.

Within the scope of the current experiment, the researchers are experimenting and employing different techniques and design variables on the Arabic script, depending on the capabilities of the Photoshop program. etc.) to obtain new artistic treatments, during which the artist adopted the realization of different and varied rhythmic systems to maximize the effect of dynamic movement as an aesthetic value in the calligraphy artwork.

In the same context, the researchers are trying to direct their artistic production towards experimentation and divergent thinking, intending to introduce new experimental approaches and extract many contemporary design solutions that are inspired by Arabic letters in the production of innovative calligraphic designs with their intellectual fluency and creative thinking with multiple dimensions to produce non-traditional design solutions.

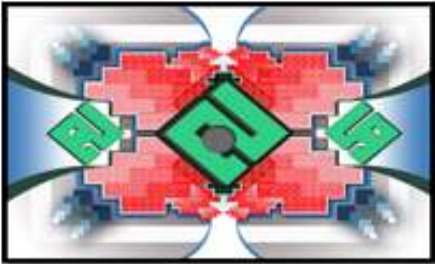

The researchers designed their works while adhering to the following criteria:



1. Each calligraphic artwork is based on one independent Arabic letter and its repetitions as a motif.
2. Experimenting with most Arabic letters (from A to Z) with only one or more letters of similar adjectives, such as :



(ج , ح) (ع , غ) (ش , س) (ت , ب)


3. Attention to confirming and achieving kinetic dynamism by confirming and enhancing the dynamic characteristics of the letter itself, or by achieving appropriate rhythmic systems in repetition, chromatic and volumetric gradation, zooming in and out, and employing paths and lines to confirm movement paths within the design.

The next tables contains an analysis of samples from the research experiment works to show that the research results were achieved and their agreement with the hypothesis and pre-determined goals: figures(7-1)

<p>calligraphic formation with letter (ع) 30 x 40 cm</p>	 <p>Figure (1)</p>
<p>Description of artwork</p>	<p>The work includes a geometrical letter formation of the main character in it is the Arabic letter ,(ع) and the geometric formulation of the motif was created using the drawing and editing tools in the Photoshop program, and then the various compositions and iterations of the same motif were made to form the digital background, with three copies of the motif separately. To be the three main figures in the middle of the design and on the sides in a balanced and symmetrical composition, and at the same time, the dynamism of the movement becomes clear.</p>
<p>Manifestations and methods of movement verification by work</p>	<p>The dynamic movement in the design can be sensed by:</p> <ul style="list-style-type: none"> • The kinetic rhythm resulting from the repetition of the letter (ع) as background treatment, and as a shape in the middle and on both sides of the design. • The kinetic rhythm resulting from the color gradient of the red color in the background is created from the juxtaposition of a letter motif ,(ع) as well as in the color gradation of the overlays of squares with a color gradient in the four corners of the design. • There is a kinetic inspiration resulting from the diagonal position of the basic shapes in the design, as well as shadow and anthropomorphic effects, which added an imaginary third dimension in the depth of the design.
<p>calligraphic formation with letter (ع) 30 x 40 cm</p>	 <p>Figure (2)</p>
<p>Description of artwork</p>	<p>The work includes a calligraphic formation of the Arabic letter (ع) in a design characterized by fluidity and free rhythms, where the curved lines and their paths with composition and colors play a role in giving the design the character of permanent movement as if the shapes revolve in a vast and infinite space.</p>
<p>Manifestations and methods of movement verification by work</p>	<p>The dynamic movement in the design can be sensed by:</p> <ul style="list-style-type: none"> • The kinetic rhythm resulting from the axial repetition of the letter (ع) as the main element at the top and middle of the front of the design, which is similar to the style of the future school in expressing movement by adding the temporal dimension within the design, which was confirmed by the gradation in the color value from transparency to opacity in the letter sequences. • A free kinetic rhythm through the diversity in the directions of the letters, especially the random rhythms in which the small letters were distributed in the background as if they were swimming in the background space. • The movement resulting from the soft color gradient of the red color in the background, which suggests the movement of light coming from the top of the design. • There is a kinetic inspiration resulting from the dynamic nature of the curved lines of the graceful flowing nature in the overall design, which is characterized by the type of font used and the complementary motif of the composition at the bottom of the design.

<p>calligraphic formation with letter (.) 30 x 40 cm</p>	 <p style="text-align: center;">Figure (3)</p>
<p>Description of artwork</p>	<p>A calligraphic design of the Arabic letter (ا) The pattern of the letter, consisting of two reversed letters (the main motif), while the relationships of repetition, juxtaposition, and interlacing in them play a major role in suggesting an appearance closer to the Islamic arabesque, which is characterized by the intertwining of its wooden motif to express unity, continuity, and infinity.</p>
<p>Manifestations and methods of movement verification by work</p>	<p>The dynamic movement in the design can be sensed by:</p> <ul style="list-style-type: none"> • A kinetic suggestion to the depth from the corners of the design resulting from the axial repetition of the letter (ا) as the main element in the retina of the letters in the background, which was processed by one of the filters to confirm the direction of movement. • A non-monotonic and semi-regular kinetic rhythm resulting from the diversity of the directions of the repetitions of small letters intertwined in the background. • The movement resulting from the soft color gradient of gray and in the background leads the viewer's eye to the center of the design and in which the main composition settles to achieve control. • There is an illusion of the third dimension and movement in the depth of the design because of the overlay relationships, shadow effects, and resizing to suggest near and far, and advanced and late elements in the background of the design.
<p>calligraphic formation with letter (ا) 30 x 40 cm</p>	 <p style="text-align: center;">Figure (4)</p>
<p>Description of artwork</p>	<p>The idea of the design came from the plastic appearance of the intertwined lines of the letter (ا) Al-Diwani, which inspired the researcher, the view of the intertwining of branches, and the formations of green veins in the leaves of the trees. The researcher tried to employ all the elements of the design to reinforce and confirm that idea, whether through design, color or movement.</p>
<p>Manifestations and methods of movement verification by work</p>	<p>The dynamic movement in the design can be sensed by:</p> <ul style="list-style-type: none"> • The gradual rhythm in size and inclination of the repetitions of the letter (ا) towards the pointed letter of the end of the leaf created as part of the background. • The gradual rhythm in color from dark to light in the same direction as the letters, in line with the natural shape of the tree leaf or the shape of palm fronds intertwining at the top of the design. • Relying on curved lines, whether in the type of line or the outer edges of the foliage in the background, while emphasizing the curved appearance of the foliage to suggest movement from the lower left corner towards the other three corners of the design. • The effects of shadow, anthropomorphic, texture, and gradient overlay, which were added by Photoshop, contributed to suggesting the third dimension of the design.

<p>calligraphic formation with letter (ﻑ) 30 x 40 cm</p>	 <p>Figure (5)</p>
<p>Description of artwork</p>	<p>The work represents a calligraphic design of the Arabic letter (ﻑ) whose idea came to support the graceful and soft kinetic appearance of the letter (ﻑ) Diwani in an atmosphere of continuity and calm in which the value of the movement seems clear.</p>
<p>Manifestations and methods of movement verification by work</p>	<p>The dynamic movement in the design can be sensed by:</p> <ul style="list-style-type: none"> • The illusionary movement directions are all poured into the visual center of the design, in which the capital letter (ﻑ) is located to confirm its dominance as an essential element in the design. • The movement appears from the bottom to the center with the gradual increasing rhythm of the letter, which suggests the shape, and the descending movement appears from the sides of the upper design towards the center also with the sloping movement of the white curved lines, which represent cut parts of the body of the incomplete letter, which plays the roles of linking, confirming movement, tightening the composition and treating the background In color diversity. • The same pattern of gradual increasing rhythm in size was also repeated in a smaller at the top and in the lower left corner to suggest the idea of generation, ascent, and continuity associated with the movement. • Rhythm by diversifying the direction of some letters, as well as the gradation of color in the background.
<p>calligraphic formation with letter (ﻑ) 30 x 40 cm</p>	 <p>Figure (6)</p>
<p>Description of artwork</p>	<p>The idea of the design came through the researcher's experiment to make repetitions of the letter (ﻑ) Diwani to produce a repetitive rhythmic system similar to the arrangement of the feathers in the bird's wing, or the sequence of palm frond lines curved by the wind, so the researcher tried to employ all the elements of the design to enhance the idea full of movement.</p>
<p>Manifestations and methods of movement verification by work</p>	<p>The dynamic movement in the design can be sensed by:</p> <ul style="list-style-type: none"> • The value of the movement is evident in this design through the tyrannical fluidity resulting from the nature of the formal appearance of the letter (ﻑ) Al-Diwani, which is characterized by its softness, exaggeration in individualization, and agility of movement. • The movement is also shown in the design through The rhythm resulting from repetition and gradation in size, transparency, and degree of rotation, to combine all these gradients to add the element of time to the design, which expresses movement. This concept emphasizes the soft gradient in the background, which reflects the movement of light rays from the top left of the design down toward the composition. In addition, with the use of transparency Through Photoshop, he gave the impression of advancing the repetitions of the letters from the back to the front, while the gradient in the angle of rotation of the elements with their repetition gives the impression of a rapid circular movement similar to the movement of the wings of a bird.

<p>calligraphic formation with letter (أ) 30 x 40 cm</p>	 <p style="text-align: center;">Figure (7)</p>
<p>Description of artwork</p>	<p>The work represents a calligraphic design based on two large circular basic shapes, in contact to give a kinetic impression similar to the relationship of rotating gears intertwined with the ends, and in light of the idea, the circular repetitive pattern was designed from the letter (أ) with an additional symbolic motif for cooperation in achieving the goal.</p>
<p>Manifestations and methods of movement verification by work</p>	<p>The dynamic movement in the design can be sensed by:</p> <ul style="list-style-type: none"> • The continuous and endless revolving movement around the centers of the circles, arising from the circular rhythmic repetition of the letter (أ) around the center of the circle, so it is difficult to determine the beginning or end of the movement. • There is also a radial movement starting from the centers of the two circles outwards, confirmed by the straight lines trajectories of the comma symbol, which exaggerates its elongation with repetition. • The character of the contrast between the shapes and the ground confirmed that movement as a result of attracting the recipient's eye towards the shapes without the ground. • There is also an inspiration of depth within the design resulting from the relationships of overlap and the diversity of opacity, transparency, and color intensity values between the three circles in the design.

RESEARCH RESULTS:

Through the previous analyzes, it is clear that the hypothesis and objectives of the research have been achieved, and the results can be summarized as follows:

1. The use of computer techniques in employing rhythmic systems helps to enrich the dynamic movement and highlight it as an aesthetic value in the calligraphic artwork.
2. The diversity in formulations and methods of employing rhythmic systems within the calligraphic design contributes greatly to enriching the aesthetic aspect of the design through the effectiveness of the dynamic movement of the calligraphic elements.
3. It is possible to reach innovative figurative formulations for calligraphic artwork using computer programs.

RECOMMENDATIONS:

1. Continuing experimentation in exploring new and advanced sources to enrich the plastic aesthetic values of artworks by linking science and exploiting modern technology
2. Directing the attention of designers and art students toward the plastic and technical capabilities of computer programs and their role in enriching the artistic work.
3. Supporting the research that studies the role of divergent creative thinking in developing artistic creativity.

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