

Diwani Calligraphy as a Starting Point to Achieve an Aesthetic Vision of Metal Artwork Design

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Abstract: It is secure to pretension that the distinctness of calligraphy as one of the most important arts in the Islamic world had an explicit relationship with the utmost importance of Qur'an for Muslims. Diwani calligraphy for a long time was kept a mystery only for talented by small numbers, and was used as a sovereign calligraphy style. Through the research and preliminary study, these types of lines are characterized by many features that distinguish this model from other Arabic lines, which can be invested aesthetically in the field of metal formation to achieve new visions and dimensions enrich this area. Diwani calligraphy is very pleasingly graceful and demands much skill to produce such spectacular works of art; it is a favourite style of many artists. The current research utilized the Diwani font characters to create designs that could be an input to the innovative metal artworks as well as the teaching curriculum. To show the aesthetic of Diwani calligraphy, the techniques carving and sunk relief have been used. Through the use of manipulation of Arabic Diwani letter either by the intersection or mirror effect form, by repetition of the letter in sequences, vibrated reflection and inverse reflection, it was engraved on metal artwork.

Key words: Diwani, aesthetic visions, Metal Work, carving, sunk relief.

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I. Introduction

Calligraphy came from the Greek word kalligraphia (καλλος kallos "beauty" γραφος graphos "writing") meaning beautiful handwriting plays a principal role in Islam. As the iconoclastic imitation of Islam have often frustrated any symbolic imagery of celestial, similar to the Law of the Old Testament, which forbids the exemplification of the invisible and indescribable, calligraphy has been surrounded by very few appearances of the representational art in Islam.

II. Previous work

Many scientists have explained the history of calligraphy in the world of Islam as clarified the main countenances of Islamic script. Fazailli (1983) [1] has, as a separate entity showed, the formal development of all substantial scripts in Iran. Blair (2006) [2] has finished an elaborate study on the history of calligraphy in the entire Islamic world. Most of them, however, are significantly concentrated in calligraphy history as a general fact.

Crimsh (2017) [3] explained that the Koran had been revealed by God through the Prophet Muhammad to Muslims, as the main central part of Islam. The holy book was masterful by the invention of calligraphy, which is regarded as one of the greatest accomplishments in Islamic civilization. Due to its gracefulness, Islamic calligraphy has begun to be not only a direct/indirect driving force of Muslims' strong identity but also a target of high appreciation to non-Muslims. Artists and calligraphers in religious and applied art behaviour have been extremely praised.

Before the paper was discovered, brass and other metals were used for writing on, kept especially for the kings. The text was maintained as a permanent document by the king, but later this technique was developed by the craftsmen as a medium of expression where they can show their skill employing engraving.

Brass is a mixture of two or more metals. It has been in use since primitive man discovered copper and other metals. It has been equal importance in Indian mythology as well as in the Vedas and epics, but till now it bears the same importance.

Islamic art is one of the tributaries of the arts, from which the artists and art specialists have drawn many aesthetic and formative values to enrich their artistic and creative fields. Metalwork, however, is one of these artistic fields. Simonowitz (2010) and others [4, 5] have explained that Islamic art has concentrated on the

photography of patterns and Arabic decorative handwriting (calligraphy), rather than on Photo, because it is feared by many Muslims that the depiction of the human configuration is idolatrous.

From the point of aesthetically, Khāni (2007)[6] explained that Islamic art is distinguished from other arts because it has an "active role and a distinctive mark. The flexibility of its product gives the possibility of ease formation. Islamic art is considered one of the most important elements of plastic art, because of its inherent qualities that allow it the ability to express movement and mass. Through the ages, this unique art plays a fundamental role as a decorative element in the artworks of Islamic art. It is addressed by many specialists.

To the greatest extent, the importance of Islamic cultural heritage representation and Islamic calligraphy depends on the aesthetic idiom of spiritual-metaphor, exceeding the word performance. Furthermore, it is a highly protected art object. In a deep sense of its poetical goodness, however, Quranic inspiration is deeply rooted in humanistic spirituality. It is positioned between the mystery of human existence and the lamentation with which idols look at humanity. Moreover, the aesthetic value connected with Islamic Calligraphy which affecting the human spirit quality, is clearly on the side of artistic imagination, especially in the production of artistic work.

Khairy (1999)[7] has declared that because of the importance of calligraphy in the field of plastic-art, many researchers were keen to address Arabic calligraphy in the field of metal forming. The researchers dealt with the Kufic script and its characters to invest them aesthetically in the achievement of metal works through the use of wires alone and sometimes combined with metal surfaces. On the other hand, the researcher tries to verify that the value of the form and aesthetic enriches the metal art-work as in the Photo (1). Khairy used trial and analytical investigation to achieve the results of the research, and this methodology is consistent with the present study to be used. Khairy used trial and analytical investigation to achieve the results of the research, and this methodology is consistent with the present study to be used. With this diversity, however, it could enrich the surface of the mineral occupied, as in the Photo (2).

Abdul-Hamid (2015) [8], for the practical application of the construction of metal works, dealing with the history of Arabic Calligraphy and its aesthetic values should be considered. In light of the methodology of the analytical and trial study, the research is consistent with the present study. With preparation of the practical applications of the present research and the results conducted, the analysis of the aesthetics of Arabic calligraphy has been carried out. Metal art workers chiseled out a very small region of the brass surface, loaded with segments of silver and gold [9, 10].



Photo (1).



Photo (2).



Photo (3).



Photo (4).

Naturally, the two styles Ta'liq and kufi [11, 12, 13] are Persian elaborated over the 14th and 15th centuries and, these models are known by their rounded forms and outstretched letters. For the royal connection, Ta'liq was often used in Persia and was widely used during the Mughal Empire. Nasta'liq is a combination of Naskh and Ta'liq is considered the most decorative of the Persian handwriting. These handwritings continued to be used today for Persian (Farsi), Urdu, and Pashto, as shown at the Photo (3) as Ta'liq/Nasta'liq calligraphy, whilst Photo (4) is showing Diwani calligraphy.

The Swiss Grid System (2010) [14] as International Typographic Style was progressing by Swiss innovators such as Hofmann; Brockmann; Bill; Lohse; Neuberger; and Vasarelli, who started to demonstrate typography and a montage constructed from photographic images. Portrayed by passionately network style; they used constructed layout, and unreasonable type, that began to be very effective in the middle of the 20th century and affected a large listener at a public event. These initiators graphic artists considered the design as part of industrial manufacturing and an investigation for the unknown, aimed at visual communication.



Photo (5).

Photo (6).

Photo (7).

Photo (8).

The photographic images were selected instead of explanation, and typefaces that were industrial-shaped. Some of their designs are demonstrating the reflection (mirror effect) form or as called in Arabic "Maraya or Muthanna" is the technique of mirror writing in which the composition on the left reflects the composition on the right as shown in Photo (5, 6) as one word reflected on itself. Photo (7) shows one "letter" moving along a circular path at a pivot point at the centre. At the pivot point centre, Photo (8) is one "word" moving in a circular path.

Martin (2005) [15] has explained that the Diwani line is one of the forms of Arabic calligraphy, which was praised in its construction and development by the Muslim artist. The Diwani line is the best part of his artistic legacy of aesthetic value, which is proud of Muslims throughout the ages. Perhaps what prompted the Muslim artist to achieve this degree of perfection and creativity of the holiness of this line; it was derived from the sanctity of the Holy Quran.

Lee-Niinioja (2018)[16] explained that in modern Kuwait, Arabic calligraphy is an interpretative, tool for religious and applied art side by side with a detailed inspection of its role in Muslim identity. As a better perception of Islamic culture is inevitable in current societies were many, strife takes place. He explained that this research could open up more discussions between different faiths and religions through different cultures and values. Lee-Niinioja also reported that Diwani is built by the movement of written joined letters protruded by an arranged in good proportions in the way of up-and-down and right-to-left slant. The style of its letters shows a mixture of Thuluth, Naskh, and Rayhani. The letters, however, are incorporating several different types of Thuluth. Furthermore, by a down stroke, each letter starts, whilst it ends with an upstroke. Diwani, however, was prized and became the noblest style of writing in the time of Ottoman chancellery.

Furthermore, Fayyad and his colleague (2005)[17] reported that its verses and its words, in which the verses of the Holy Quran were passed on the walls of mosques, their platforms, and domes, as well as pots, textiles, etc. Perhaps what prompted the Muslim artist to achieve this degree of perfection and creativity of the holiness of this line was derived from the sanctity of the Holy Quran, its verses and its words, in which the verses of the Holy Quran were passed on the walls of mosques, their platforms, and domes, as well as pots, textiles, etc..Fayyad and his colleague also explained that the Muslim artist took care that these words were written in the most beautiful and best form and that they should be formulated to the fullest extent without diminution.

Al-Alfi (1976) [18] explained that, because the Diwani calligraphy is characterized by the softness and elegance of its letters, with which the researchers found that the Diwani calligraphy is adequate to be the focus of research and experimentation. By subjecting these letters individually or in combination, many of the design treatments can innovate many Aesthetics patterns. Through axial repetition or progressive patterns or combination, to find formulations and relationships, an aesthetic can invest to build a metal artwork with an innovative style.

AbiFares(2001)[19] declared that under the Ottoman Empire in the 1500s, the calligraphy modality used in a logo is Diwani, which elaborated to a specified degree for the Sultan's palaces and visually it has long dynamic proportionality, fashionable flow of its strokes.

Atrissi (2013) [20] has used inequality techniques in the use of Diwani calligraphy style with Baskerville for the Latin style. Mahmood (1995) [21] proposed that the most apparent reason could be the outstretched and trademark "Qaaf"(ق) of the letter 'Q' in the word 'Qatar'.

III. Diwani Aesthetics

In general, many researchers addressed the aesthetics of Arabic fonts and what distinguishes them as written elements that have verbal connotations and sacred meanings where many of them have manipulated these characteristic. In this study, the researchers will attempt to shed light on the aesthetics of the Diwani font and its formal technical characteristics. Furthermore, as far as the objective is to reveal the aesthetics of the characters of this line, the value is not the study of the Diwani line as a just type of line, but how to be invested in access to new aesthetic visions by the construction of metal works, as well as to show the physical properties of the line.

IV. The physical properties of the line

IV.1. Line Elasticity

It is the ability of the character after being stretched or compressed to resume its normal shape (length and size). This allows the freedom of the artist during the design to draw the character, overlap, complexity, and attraction to reach aesthetic values in addition to balancing the elements of form in the artwork.

IV.2. Line Completion :

It is to give the letter the right shape in terms of thickness and accuracy (sharpness) in the chest of the characters. Also, at the end whenever the character are bending and twisting. Thus forming a variety of thickness, contributing to the flow of ideas and imaginations of the composition of characters as intertwined in a beautiful contest enriches artistic work aesthetically.

IV.3. Linear Rhythm:

It is the rhythm resulting from the diversity in the thickness of the character, the length, movement, extension, contraction and expansion, which helps the artist deals with a solo character to be reformed. In the course of the above, based on the Diwani font, the researchers tried to design calligraphy fonts to achieve formulations that could contribute to the aesthetic enrichment of the metal works. During the implementation, according to each technique, the required considerations, the researchers took into account the rules of the aesthetic of the Diwani characters to be observed. The researchers will also achieve design visions and apply them with a flat surface of raw metal material.

V. Research plane

V.1. Research Objective:

The researchers applied work on metal materials using the cutting technique on the boundary of the shape, as well as engraving at any depth such as Relief, Bas Relief otherwise, Sunken Relief.

V.2. Importance of Research:

A study of the aesthetics of the Diwani line can be:

1. A platform to find new entrances to the design of metal work.
2. Developing the aesthetic awareness of the Islamic heritage in general and the Arabic calligraphy in particular
3. A platform to new entrances as curriculum course technique for student education.

V.3. Research Problem and Limits:

The problem of research in the following question:

1. How can the aesthetics of the Diwani font be invested as an input to the design of metalworking?
2. The conceptual framework with the combination of two different engraving techniques such as Carving and Sunken Relief styles might produce modern and contemporary artworks.
3. For organizing the experience of the research, the analytical approach should be used in monitoring and studying the concept of the rules of different manipulation of Diwani calligraphy in artwork design.

V.4. Research Goals:

1. The research seeks to draw a shed light on the beauty of calligraphy and the works performed on metal artwork design through the effect of Diwani lines.
2. The research supports the field of calligraphy designers for teaching students as they study in the Faculty of Basic Education Department of Art in Kuwait.
3. The research seeks specifically in terms of Trial and formative terms that carry the methods of applying the principal design and the aesthetic innovated dimensions.
4. The research opens the students' minds horizons to enter the world of art and its practice to be able to express feelings, thoughts and emotions by knowing the type of Diwani calligraphy and techniques.

5. To learn in depth about aesthetics in visual arts Diwani calligraphy.
6. To create traditional artworks and develop them for metal artwork.
7. To find new entrances to the design of metal works.
8. Achieving innovative aesthetic visions of the existing metalworking design on the Diwani line.

V.5. Research Importance:

1. The research emphasises the relationship between the meaning of life Apart from analyzing the construction of Diwani calligraphy trend and the calligraphically designers have to understand.
2. The types of Diwani calligraphy should meet the needs of the metal artworks and be able to express the creativity of the individual letter of metal sheets requirement.
3. The innovation of Diwani calligraphy design principles for creating aesthetic values for engraving on metal artwork and to gives an idea to the craftsman about the directions of his engravings as well as cutting.

V.6. Research Question:

1. To what extent could be the meanings of life as an input to the integration of the rules of different types of lines on Diwani calligraphy design serve the metal art work?
2. Should the field of Diwani calligraphy artworks combine with explaining the atheistic of different type of line could help the elegant of the metal art work?

V.7. Research Hypotheses:

1. The researcher assumes that the characters of the Diwani line have an aesthetic value that can be studied to contribute to the realization of new aesthetic visions enriching the field of metal works.
2. The integration and synthesis between the different types of lines, renews, and extends the printing field in the college with modern and contemporary designs.
3. There is a wide range of technical and aesthetic diversity in simple dress fabric and styles and methods.
4. The expression and combination of different types of lines in a modern conceptual framework can produce modern fashion design.

V.8. Research Methodology:

The methodology includes two frameworks:

First analytical framework:

- Based on the characters of the Diwani font and the possibility of dealing with them in the field of metal works, the researchers study the Diwani calligraphy from the historical and aesthetic point of view to reach the entrances through which to build simple or compound plastic vocabulary.
- Ensuring its hypotheses, objectives and limits through the definition of different styles of Diwani design.

Second experimental framework:

In which the researchers start a preliminary design to reach the optimum to be applicable for the metal artwork.

VI. Previous work

As previously mentioned, Hamid (2015) [8] explained that based on the thought of the religious trend, Arabic calligraphy is a starting point for the construction of metalwork. Al-Rubaie (2008) [22] showed that his study aims to classify and analyse the works of the Palestinian artists who inspired the Arabic calligraphy in their artistic works and benefit from their experiences in the field of design. The results of the study showed that the researchers came to many different forms of metal. This study can be used in the theoretical framework by studying the aspects of the technical characteristics associated with the types of Arabic calligraphy. Contradict; this study differs from the current research that it dealt with the Arabic calligraphy in general, and to build a metal artwork. The current research will address the Diwani line and its applications on metal surfaces using carving and sunken relief techniques.

In terms of design construction; design formulas and colour groups in the work field of students, the results of the study showed that there are significant differences in the teaching of design. The study can be used in the theoretical part of the aesthetic analysis of the Arabic characters.

The study of Nasr (2009) [23] aims to benefit from the experience of artist Youssef Sayed and to identify the distinctive phenomena in his works of poetry in highlighting the aesthetics of the line. Although this study is important, it differs from the current research that addresses the aesthetics of the characters Diwani and how to invest them to reach aesthetic formulations of decorative units.

The study of Taha (2002) [24] aimed to deal with the decorative forms of figurative writing. Based on the character adaptability in the Arabic calligraphy; the knowledge of the foundations and systems structure, the characteristic was to find solutions and formulations through the art of calligraphy. The study concluded that

access to modern formulations will be based on what they enjoy. Arabic calligraphy is flexible and configurable. This study might be consistent with the current research. Regarding the analysis of the diacritical font with its adaptability and enrichment of the decorative painting, it differs with the present research as concerned with Arabic calligraphy in general.

Waterman (2009) [25] explained that Diwani, and its variant Jali Diwani, were progressing during the Ottoman Empire. This style is possibly the most ornamental form of Arabic calligraphy. The letters are a very short distance to each other, making it difficult to read, in some cases even by those that are easily and articulately in Arabic. The style is highly ornamental and decorative. Pieces of Diwani calligraphy are often more beautiful or attractive with tiny details as to showcase a calligrapher's skill level.

VII. Types Of Metal Artwork Engraving

Engravings mean mark or decorate (an object or surface) with a cut or a series of cuts, in other meaning a particular design on different types of materials.

VII.1. Etching:

With this process, Etching is used to cut lettering, logos and graphics into glass, crystal and stone. Vases such as , crystal awards, barware, trays, marble pieces, wine and spirit bottles and paperweights engrave beautifully as shown in the photo(9).

VII.2. Inside Ring Engraving:

Inside/Outside Ring Engraving assigns for that special lovely message of the particular event to be with, forever as shown in the photo (10).

VII.3. Laser Engraving:

Laser Engraving is adequate for different types of materials containing metal, stone, leather, and wood. Laser engraving is very stylish. They are overwhelmingly used, particularly in iPad covers, portfolios, and making name logos. Laser Engraving is a process to produce lettering, logos or designs on varieties of materials such as leather, wood, stone, acrylic, as well as coated metals. Furthermore, Items like wooden picture frames, Acrylic Awards, rifle stocks, marble coasters, iPad covers, cutting boards; portfolios and name membership are often engraved using the laser process as shown in the photo (11).

VII.4. Rotary Engraving:



Photo (9).



Photo (10).



Photo (11).



Photo (12).

Rotary Engraving is a series of steps taken in order to achieve a particular end such as a permanent “cuts” lettering, logos or designs into metals. The metals could be brass, aluminium, copper or stainless steel. Not only that, but also gold and sterling silver. Moreover, alike are often engraved with this rotary process, items such as knives, jewellery, trophies, plates, cups, bowls, picture frames, card cases could be manipulated as shown in the photo(12).

VII.5. Relief:

Relief is classified by a degree of projection. The figures project at least half of their natural circumference from the background. Between these two types is demi relief (half-relief). The lowest degree of relief in which the projection barely exceeds the thickness of a sheet of paper is called a crushed relief.

There is also a relief in reverse, called hollow relief, in which all the carving lies within a hollowed-out area below the surface plane, and which, through an illusion of depth and roundness, looks like raised relief. Hollow relief also called sunk or concave relief. A relief sculpture emerges out of a flat surface, and the presentation of the image on a surface as 3D space is comparatively shallow as shown at the photo (13).



Photo (13).



Photo (14).



Photo (15).



Photo (16).

VII.6.High Relief

The Photos in the sculpture are extremely elevated to a higher position or level from the background as shown at the photo (14, 15, 16)

VII.7.Bas Relief

The figure is considerably raised from the surface of the background. In bas-relief, the figure projects only slightly and, no part is entirely detached from the background as in medals, coins, or areas of large relief. The main effect is produced by the reflection of light and its shadow as shown in the Photo (17, 18)

Photo (17) Known as an incredible example of modern coinage, the 2019 American Gold Eagle.



Photo (17).



Photo (18).



Photo (19).



Photo (20).

Photo (18) is gilt bronze medal, Campbell, inventors of the fire extinguisher.

Photos (19, 20) are bas-relief carvings on a wall of the ancient Egyptian temple.



Photo (21).



Photo (22).



Photo (23).

VII.8.Sunken Relief

Also known as decorate or engraved into a material. Relief was created by having an image carved down below the surface of the sculpture as shown in the photos (21, 22, 23).

VII.9.Carving

It is the process of taking away material from a given volume, used in wood, stone, marble, plaster, ice or other "hard" materials. In sculpture, it is the act of cutting or chiselling the material into the required form using knives, chisels, gouges, points, saws, adzes and hammers as shown in the photo (24).



Photos (24)

Photos (24) show an impressively beautiful carving, where the hierarchical decorations of the photos are the same in quantity, size, symmetrical, asymmetrical and value to the writing.

Carving is the process of transferring materials into existence a sculpture by cutting, chipping away from or otherwise eliminating material from a solid mass using a chisel, jigging or other carving tools. As long as the material is removed from the mass, carving is nominated as a subtractive process.



Photo (25).



Photo (26).



Photo (27).



Photo (28).

Photo (25, 26) is acanthus; Photo (27) is a tree wall and Photo (28) is Thai wood carving crafts.

VIII. Experimental Framework

Through the results achieved by the analytical process, the researchers will manipulate the characters of the Diwani line based on the method of repetition, transitions, reflection, revert reflection and overlap to reach formulations that can be invested in the construction of metal artwork.

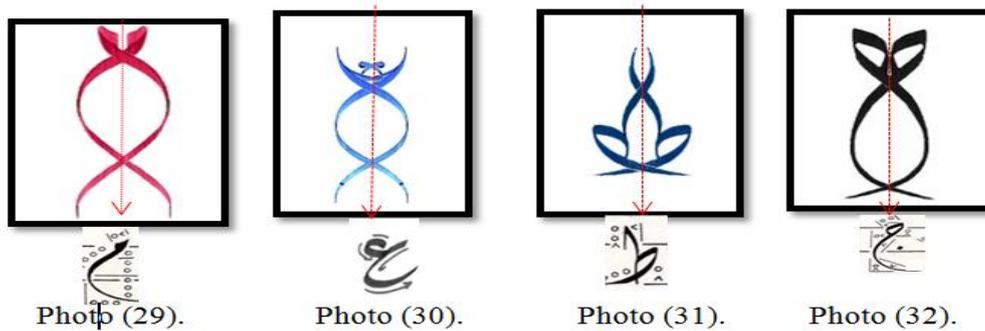
- Constructing designs for letters form based on simple or compound diagonal Characters.
- Mixed applications for a variety of these designs using the above-mentioned modulation methods (cutting - stamping- bending) using flat metal ore.

IX. Trial Practices

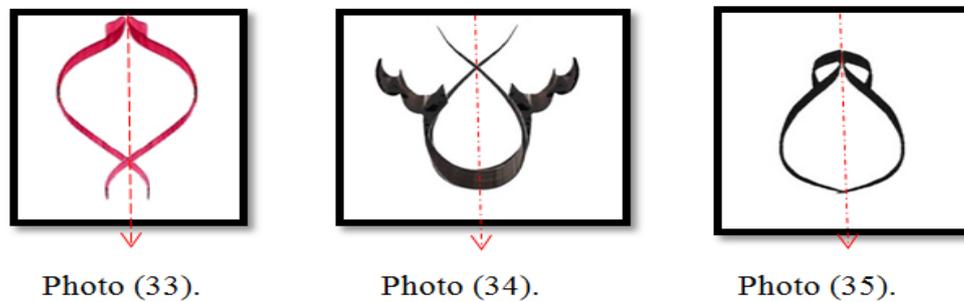
The experiment of the researchers used the characters of the Diwani line to synthesize the initial units of the design processes such as the intersection, transitions, horizontal reflection, vertical reflection, and total and partial interference in some vocabulary. Eventually, the researchers performed the pivotal repetition of this primary unit in order to reach the plastic art solutions that can be the starting point for the metalworking design.

The following examples of the letters as an illustration design as based on the intersection form of the character as preliminary unit's:

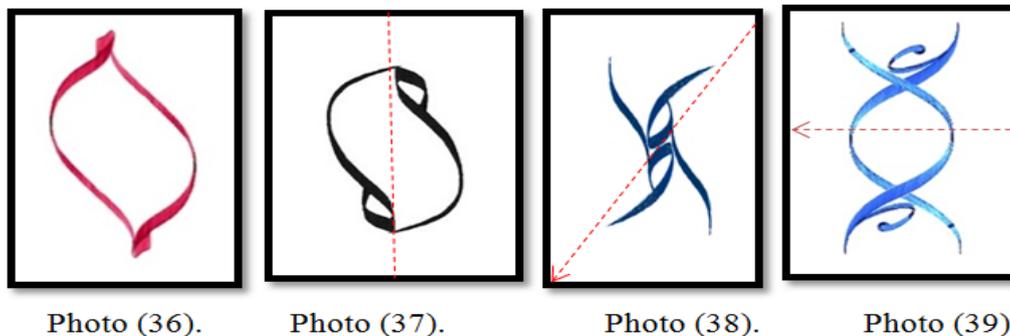
Photo (29) is the character "Meem" (م); Photo (30) is the character "Aen" (ع); Photo (31) is the character "Tah" (ط); whilst Photo (32) is the character "Haa" (ح).



In different techniques, the design is based on in the reflection form what is called (mirror effect) as preliminary: Photo (33) is the character "Meem" (م); Photo (34) is the character "Seen" (س); Photo (35) is the character "Haa" (ح).



With developing the technique to be more complicated, the Vision in the form of initial units based on Inverted reflection as shown at the photos (36, 37). The Vision at photos (38) is in the form of initial units based on diagonally Inverted reflection, whilst as shown at the photos (39) reflection what so called (mirror effect).



By developing the technique to be more complicated, the Vision in the form of initial units is based on inverted reflection as shown in the photos (36, 37). Vision in photos (38) is in the form of initial units based on diagonally inverted reflection; whilst as shown in the photos (39) reflecting what is so called (mirror effect).

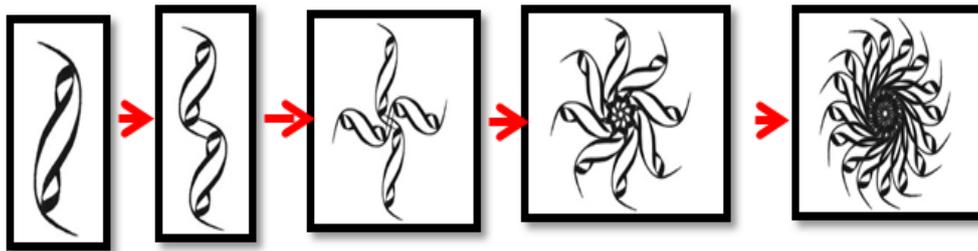


Photo (40).

Based on the letter "Haa" (ح), Photo (40) represents the process sequences of building the character in two inverted reflected unit on vibrated diagonal direction, taking into account the appropriate design for the plastic art to be applied.

Based on Diwani's script, in this experiment, the two researchers conducted many varied designs. Al-Afi 1976) [18] explained that, because the Diwani calligraphy is characterized by the softness and elegance of its letters, with which the researchers found that the Diwani calligraphy is adequate to be the focus of research and experimentation. By subjecting these letters individually or in combination, many of the design treatments can be based on Diwani's script, in this experiment, the two researchers conducted many varied designs. These designs conducted many decorative units, in which the researchers collected two opposing characters and then repeated them in a pivotal manner. Sometimes the letters are alternating and sometimes opposite in the direction. Each of these situations produces a new form whose outcome differs from the original one. It was noted that the more the characters overlap, the more occupied area emerged, and the more the characters set onward towards the perimeter of the form, the greater the space between the letters, resulting in decorative shapes formation. In addition, there are forms of some characters suitable for the creation of decorative units that can be dealt with the use of the cutting method as manual jigsaws. However, the overlapping and interfering letters in the centre of the design perform an area that may not be appropriate for jig cutting. By rephrasing and reducing, therefore, some parts of the form will allow the creation of spatial spaces in the centre of design as shown at the last shape of Photo (24).

X. Experimental work

X.1. Trial no1:

X.1.1 The preliminary design:

The proportion of Geometric harmony plays an extremely important role in Arabic calligraphy. The fairness and explicitness of the text and the beauty of its line demand rules of proportion. These rules of proportion are depend on the size of the "Alef" (ا); the first letter of the Arabic alphabet [26].

The design is based on the formation of letters "Alef" (ا) with central vibrating repetitions resulting overlapping in the central parts of the design as shown in the Photo (41).

X.1.2. Technique:

X.1.2.1 Carving process,

Execution of the artwork carried out by jiggling technique shows the aesthetics resulting from the exchange between the space and the surface as shown in the Photo (42).

X.1.2.2 Sunken Relief process;

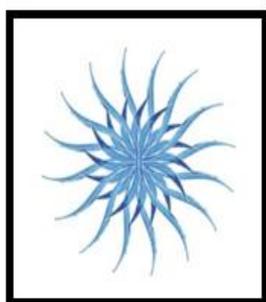


Photo (41).

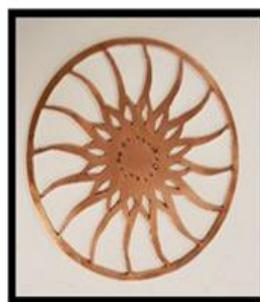


Photo (42).



Photo (43).

The Sunken Relief technique has been applied where the aesthetics of combination and intersection lines are illustrated in the centre, producing a multiplicity in the levels of the work surface as shown in the Photo (43).

X.2.Trial no 2:

X.2.1.The preliminary design:

The design is based on the reformation of the letter "Ain" (ع) with central vibrating repetitions resulting in overlapping some parts of the design and partially interfering with the repetition of the letter itself resulting in the size of the blanks varied. Consequently, due to the central repetition and the overlap of some parts of the letter an ornamental unit is invented as shown in Photo (44).

X.2.2.Technique

X.2.2.1.Carving process:

The implementation of the carving process shows the aesthetics artwork as the consequence of exchange between the space and the ground of the work of art. Because the intersection and overlap resulting from the axial repetition has created a space in the centre of the design, the artwork does not affect the aesthetics of the nature of the space as shown in Photo (45).

X.2.2.2.Sunken Relief process;

Implementation of the Sunken Relief process; the aesthetics of combination and overlapping intersection lines are clearly shown in the centre, producing a multiplicity in the levels of the work surface. The intersection, however, reflected the aesthetics of the visual movement that takes the eye from outside the design to the inside and from the far right to the far north, moving in harmony with the artwork as shown in Photo (46).



Photo (44).

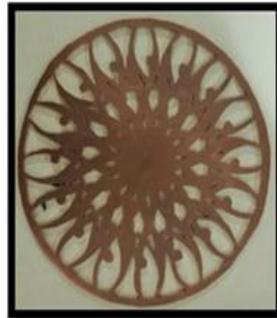


Photo (45).



Photo (46).

X.3.Trial no3:

X.3.1.The preliminary design:

The design is based on the reformation of the letter "Haa" (ح) with central repetitions resulting overlapping in some parts of the design and an intersection in the other parts. Also, the intense intersection in the centre of the design creates a massive area that is required to be redesigned to suit the aesthetics of the method of Carving as shown in the photo (47).

X.3.2.Technique:

X.3.2.1.Carving process:

Resulting from the exchange between the space and the ground of the art-work, the implementation of the Carving process shows the aesthetics of the work. On the other hand, the process configured an overlapping and intersection and lines. In order to keep the balance of the design, the carving process forced the researchers to create spaces in the centre of the design as shown in the photo (48).

X.3.2.2.Sunken Relief process;

Implementation of the Sunken Relief process, the aesthetics of overlapping and intersection lines are illustrated in the centre, producing a multiplicity in the levels of the work surface as shown in the Photos (49)



Photo (47).



Photo (48).



Photo (49).

X.4.Trial no4:

X.4.1.The preliminary design:

The design is based on the reformation of intersection of the letter "Meem" (م) with central repetitions, resulting in intersection in some parts and overlap in the other parts to produce a new ornamental unit as shown in Photo (50).

X.4.2.Technique:

X.4.2.1.Carving process:

Taking into account the foundations of the philosophy of carving from the exchange between ground and space in the art-work, the Carving process could innovate a decorative unit as shown in the photo (51).

X.4.2.2Sunken Relief process;

Implementation of the Sunken Relief process, the aesthetics of intersection and overlapping lines are illustrated in the centre, producing a multiplicity in the levels of the work surface as shown in Photo (52).



Photo (50).

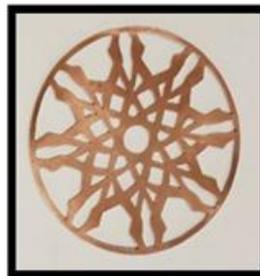


Photo (51).



Photo (52).

X.5.1.Trial no5:

X.5.1.The preliminary design:

The design is based on the shape of the letter 'Allam' (ا) in the opposite direction with central repetitions resulting in overlap in some parts and intersection in the other parts to innovate a new ornamental unit as shown in Photo (53).

X.5.2.Technique:

X.5.2.1Carving process:

Taking into account the foundations of the philosophy of transfer materials by the exchange between ground and space in the art-work, the carving method of the decorative unit has been used as shown in Photo (54).



Photo (53).



Photo (54).



Photo (55).

X.5.2.2. Sunken Relief process

Through the application of the Sunken Relief process, the aesthetics of intersections and overlapping lines are clearly shown in the centre, producing a multiplicity in the levels of the work surface as shown in Photo (55).

X.6. Trial no6:

X.6.1. The preliminary design:

The design is based on the reformation of letter "Sien" (س) with central repetitions, resulting in overlapping at some parts of the design, whilst intersect at the centres as shown in Photo (56).

X.6.2. Technique:

X.6.2.1. Carving process

Executing in carving process shows the resulting aesthetics as exchange between the space and the surface of the work of art with a specific frame of the decorative unit to emphasize the cohesion of the parties to the work of art as shown in Photo (57).

X.6.2.2. Sunken Relief process

Due to the Sunken Relief technique, the aesthetics, beautifulness and attractiveness by intersection and overlapping lines are clearly indicated in the centre, producing a multiplicity in the levels of the work surface as shown in Photo (58).



Photo (56).

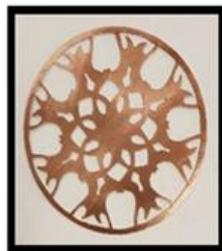


Photo (57).



Photo (58).

X.7. Trial no7:

X.7.1. The preliminary design:

The design is based on the formation of letter "Meem" (م) with central repetitions, resulting as overlapping in some parts of the design, particularly in the centres as shown in Photo (59).

X.7.2. Technique:

X.7.2.1. Carving process

Executing in the discharge method shows the aesthetics resulting from the exchange between the vacuum and the surface of the work of art. The researchers also increased the thickness of the edges of the lines connecting the end of the design to increase the strength and cohesion of the parts of the decorative unit as shown in Photo (60).

X.7.2.2.Sunken Relief process :

The aesthetics of overlapping and overlapping lines are illustrated in the centre, producing a multiplicity in the levels of the work surface as shown in Photo (61). It couldn't have to delete parts of the design, but by the method of formation, whenever show at multiple levels and overlapping vocabulary; the beauty of the artwork appears.

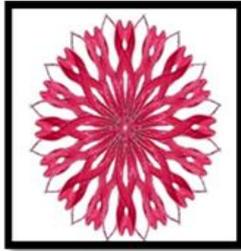


Photo (59).



Photo (60).



Photo (61).

X.8.Trial no8:

X.8.1.The preliminary design:

The design is based on the formation of the letter "Sade" (ص) in a manner in which the characters meet with central repetitions, resulting overlapping in some parts of the design, especially the overlap of the lines, emphasizing the aesthetic value of the role of the encounter and the repetition of the decorative unitas shown in Photo (62).

X.8.2.Technique:

X.8.2.1.Carving process:

The implementation of the method of unloading emphasizes the aesthetics of design, which took into account the requirements of the method of unloading of the distribution of surfaces and vacuum in the work of artas shown in Photo (63).

X.8.2.2.Sunken Relief process:

The diversity of thickness with the diversity of the character of the letter and the curvature with twisting contributed to highlight the aesthetics of the character and design of the decorative unit, which helped to illustrate the aesthetics of the composition of the barges and the cave as shown in the Photo (64).



Photo (62).



Photo (63).



Photo (64).

X.9.Trial no9:

X.9.1.The preliminary design:

The design is based on the formation of letters "Taa" (ط) in an overlapping and contrasting manner. This unit was taken in square shape and to preserve the general shape of the decorative unit. The repetition of the letter on this replicas shown in the photo (65).

X.9.2.Technique

X.9.2.1Carving process:

Adding a frame to the decorative unit to maintain the cohesion of the limbs and increase the strength and stop the design at this extent, taking into account the method of unloading and requiring the existence of spatial spaces design as shown in the photo (66).

X.9.2.2.Sunken Relief process:

The researchers implemented the decorative unit in a sunken relief style with some modifications to the space area between lines to fit the styles as shown in the photo (67).



Photo (65).

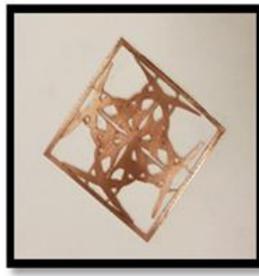


Photo (66).



Photo (67).

X. The results

In the same field of art and education, the two researchers presented these results to the peer reviewers. The participation of the reviewers was positive.

The coefficient of the agreement average weight and the level of evaluation of the items of the questionnaire are reported at the following table:

Table (1) shows that the coefficients of the arbitrators' agreement towards the evaluation items were high, where they occurred at an "Excellent" level. The weighted average value of the items ranged from (04.4 - 5.0). The agreement coefficients ranged between (88% - 100%), the overall assessment of the questionnaire was high and occurred at a "very good" level with a weighted average (4.8) and a coefficient of agreement (96%).

Note:

*Evaluation:-Excellent= 5 V. Good=4 Good =3 Fair =2 failed=1

Table (1)

| Item | Evaluation* | | | | | Total weight | Weighted average | Agreement coefficient (%) |
|---|-------------|---|---|---|---|--------------|------------------|---------------------------|
| | 5 | 4 | 3 | 2 | 1 | | | |
| 1. The extent to which the Diwani lines contributed to the realization of aesthetic visions of the mineral exploitation | 5 | - | - | - | - | 25 | 5.0 | 100 |
| 2. the extent of suitable designs for the methods of modulation used | 4 | 1 | - | - | - | 24 | 4.8 | 96 |
| 3. To what extent the results confirm the imposition of the research | 5 | - | - | - | - | 25 | 5.0 | 100 |
| 4. the extent to which the objectives of the research | 5 | - | - | - | - | 25 | 5.0 | 100 |
| 5. How authentic are the designs implemented | 2 | 3 | - | - | - | 22 | 4.8 | 88 |
| 6. The extent to which Diwani characters contribute to the construction of designs with innovative aesthetic views | 5 | - | - | - | - | 25 | 5.0 | 100 |
| 7. The extent to which designs are suitable for the modulation methods used | 3 | 2 | - | - | - | 23 | 4.6 | 92 |
| 8. The extent to which the relationship between heritage and contemporary is achieved in the designs implemented | 3 | 2 | - | - | - | 23 | 4.6 | 92 |
| 9. The role of the interaction between the design and the visual aspects in highlighting the aesthetic aspect of the work | 4 | 1 | - | - | - | 24 | 4.8 | 96 |
| Overall assessment | | | | | | | 4.8 | 96 |

Fig (1) and (2) illustrate the obtained result

Fig (1): Clarifies the agreement coefficients of the arbitrator towards the items (1-9) of the questionnaire at table (1).

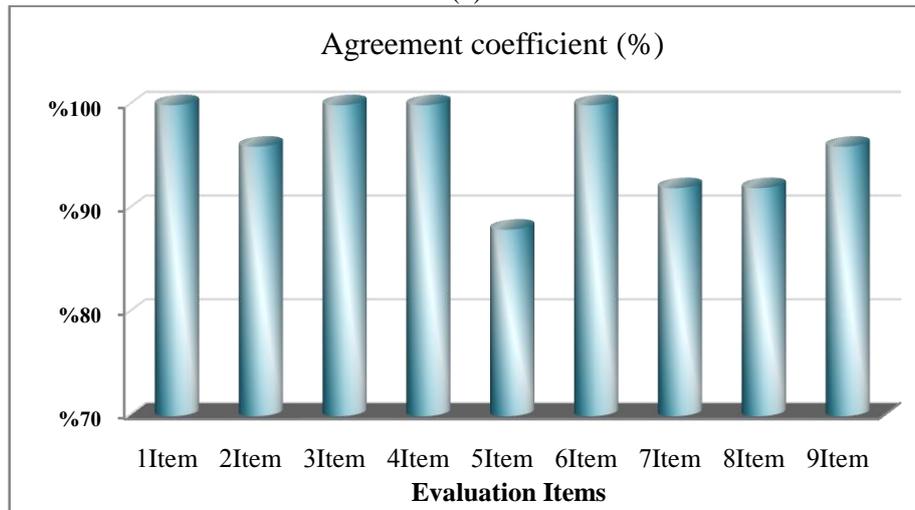


Fig (2) the quality factor

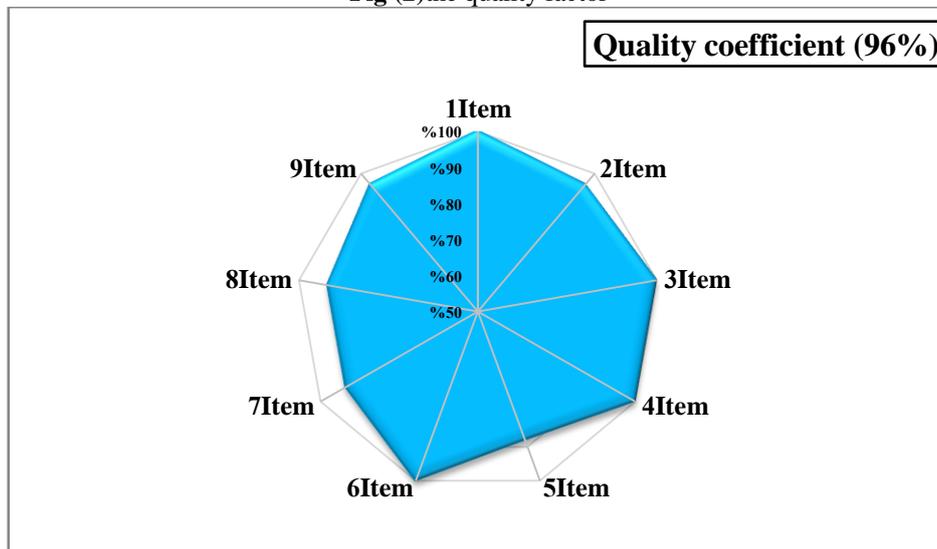


Fig (2): Demonstrates the quality factor as a whole of the evaluation and questionnaires items. The results indicate that the researchers assume that the Diwani font has aesthetic values that can be under investigation for the fulfilment contribution of new aesthetic visions enriching the field of metal works.

For the sake of supporting the standpoint of the arbitrators to achieve the objectives of the research:

- Demonstrate the aesthetics of the Diwani font and its possibilities reform in terms of innovative design.
- To find new technique to the design of metal works.
- Achieving innovative aesthetic visions of the existing metalworking design on the Diwani line.

XI. Conclusion

The study aimed to utilize the Diwani font forms to create designs that could be an input to designs of metal works and get used to its advantages in the metal artworks teaching. This technique was applied by the different researchers on metal materials using the carving and sunken relief process.

The results of the study showed that the Diwani font has an aesthetic value represented by the diversity of its shapes and thickness by a single craft as well as the manipulation of the font itself. These aesthetics and innovative techniques have been proven after being adapted to the production of decorative units on metal surfaces.

Furthermore, the diversity of the thickness of Diwani single letter, has been confirmed its aesthetics after being altered on the metal surfaces to produce decorative units. In addition, the results indicated that the artwork of the carved form may not be appropriate for sunken relief, with the type of plastic artwork.

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