

**The visual values and the intellectual implications of the techniques of segrafito as an entrance to the artistic variables in the field of teaching contemporary ceramics**

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**Abstract:**

Ceramic art is characterized by the multiplicity and diversity of its technical methods, and was old and viewed primarily functionally, but through the ages ceramic art began to take a special place within the modern house became an art that combines the function antiutilitarian of forms, and became an art with fluency and freedom in aesthetic forms and all this requires that the artist have a trend towards experimentation with the availability of his ability and his technical and artistic skills, Techniques and associated methods are one of the factors affecting the development of the education of any art, ceramic art of ancient arts that have always contributed throughout the artistic ages to the development and advancement of the artistic product and the multiplicity of methods formulated for ceramic forms, development is a continuous event in the technical and operational methods of color effects and there are many additions in each addition that show us a philosophical and technological aspect stemming from the nature of materials and their components and related to experiences, studies and research in both The new applied techniques and treatments in ceramics to make a big difference in the concepts of raw materials and how to process ceramic surfaces through various techniques by studying them and reformulating them again to discover formative solutions with a new vision.

Ceramic surfaces are processed through the use of abrasion style in linings and the term sgravito is due to the word scraping in Italian, a method of decoration techniques on ceramic surfaces and is formed by digging the outer surface to show the background and contrast of colors.

**Key words:**

visual values, segrafito, artistic variables, ceramics

**Introduction:**

**Background search:**

The use of sgravito decorative methods contributes to students' experience, skills and innovative treatments that expand their aesthetic perceptions, and the technical methods of applying linings to the surfaces of ceramic shapes have varied. The body in the binding phase, after drought, after the first fire, the potter has conducted several experiments on the ore of clay, and these experiments dealt with the materials used and methods of treatment in the way that enriches the field of porcelain, and other experiments to treat the surface in different ways and methods that enrich the surface of the ceramic shape, including surface treatment or formation using the technique of sgravio.

**Search problem:**

The time of the semester does not expand to pass through the stage of glass painting, the ceramic shape often stands at one of the two stages of drying or the first fire at most, which leads to the postponement and postponement of the moral incentive obtained by the student if his work is completed, the use of ceramic lining helps to achieve that motivation because it helps to bring out the ceramic shape in one heart, as well as save time and effort and provide the energy of ovens, as the blanket is used in various ways easy to apply on the surface Before the drought.

**The problem with research lies in the question:**

– How can Sgravito technology be used as an entry point for plastic variables in the field of contemporary ceramic teaching?

**Search goals:**

**The research aims to:**

1-Reveal the decorative potential of sgravito technology as a source of enrichment for the teaching of porcelain to art education students.

2-Finding a stack that helps lift the ceramic linings to give a bright paint.

3- Add the new one by dealing with local clays (aswanli- urine kidneys) to implement ceramic forms (segrafito) characterized by originality and contemporary in accordance with the techniques of the era.

4-Introducing experimental entries to develop ceramic shapes with multiple formal possibilities, by processing surfaces by scraping into the colored ceramic lining.

**Search assignments:**

**From the above, the researcher assumes that:**

1-Expertise in ceramics can be increased using lining abrasion techniques in contemporary styles.

2-The composition of sgravito techniques contributes to enriching the aesthetics of contemporary ceramic form.

**The importance of research:**

- Take advantage of simple modulation methods to reach a ceramic shape with aesthetic and high quality descriptions using abrasion in the lining

- The importance of aesthetic and technical values associated with heritage in creating contemporary ceramic forms.

- Sgravito technology helps to produce the ceramic shape in a single heartburn, thus saving time, effort and the energy of the furnaces.

- Facilitate the process of artistic expression in the ceramic field and highlight the relationship between shape and color through the color and texture effects of the lining in the treatment of the ceramic shape.

**Search terms:**

**1- segrafito:**

The sgravito technique is done by scratching the colored layer of the surface of the clay body in order to reveal the color of the original body located below the lining, and uses many tools, and can use fingers, this method is called finger graphito, as well as can use a rough brush, sharp knife, cutting tool or solid plant sticks so that their limbs are equal (Daniel Rhodes, 1973,p242)

**2- Lining:**

The lining is a soft paste clay, mixed with water so that it is the strength of the cream, placed on the ceramic body made before it dries"( Mohammed Yusuf Bakr, p. 86 )," and adheres to it completely, and does not separate from it in any way, and this is achieved only if this raw material of a type shrinks at a rate that is completely equivalent to the rate of contraction of the vessel itself when drying or when exposed together to fire, and get it right requires complete accuracy in preparing the lining, preparing the lining, The body's own clay, which requires many experiments to get the best results."(Saied al-Sadr, 1948, p. 40).

**3- Technical:**

The processing of artistic details by the artist - artistic prowess - technical methods - is a way to accomplish a intended purpose and techniques (by combining) a name for the specific practical methods practiced by individuals to obtain certain results (Jamil Saliba, 1982).

**Search limits:**

- The research is limited to the use of clays of (aswanli clay and urine kidney).
- Inventory and categorize sgravito techniques by displaying some ceramic models of an anthology of the work of some contemporary potters and heritage.

- Use of colored mineral oxides (iron oxide, manganese oxide, tin oxide, cobalt oxide, chromium oxide , calcium oxide and calcium carbonate).
- The research is limited to a series of practical experiments carried out by students of the fourth division, department of technical education, faculty of quality education in local materials to obtain compositions or more to improve the properties of the lining to give a paint of a bright color of the first heartburn reflects the use of the technical methods of graphito and through which the color values of the lining appear contemporary .

**Research methodology:**

In the theoretical framework, the researcher follows the descriptive analytical approach.

In the application framework, the researcher follows the experimental approach through a range of practical applications.

**First: the theoretical framework:.**

- 1- A historical study of the beginnings of clay lining coloring.
- 2- Study and analysis of clay linings, methods of application, storage methods and purpose of use.
- 3- Learn about the tools and materials used in the field of sgravito decoration.
- 4- Study the various technical methods and techniques used in the application of colored clay linings in the ceramic form .
- 5- Study the technical features and characteristics of ceramic shapes decorated with slitting and scraping technique in the lining.
- 6- Study and analysis of ceramic works that dealt with abrasion with clay lining.
- 7- Understanding the aesthetic values of contemporary ceramic forms and their relevance to the treatment of ceramic surfaces using clay linings.

- **Beginnings of lining coloring:**

Ceramic linings have been used throughout the ages in all human civilizations and the ancient Egyptians did not use real glass paint, but they used a lining that was as close as possible to glass paint and was not a real glass coating, and the linings were used in Greek, Roman, Coptic and Islamic civilization and the Arab ceramic is a huge ceramic heritage carried out in this way and showed complete control over the material and its superior skill in decorations, diversity, beauty of design and colors.

- **The condition of the objects applied to the linings:**

The clay lining is not only applied to objects and is in a wet state, but linings are applied in three cases but with some differences in composition in terms of the material forming the clay lining itself, these cases are:

A-on objects as they are in binding phase.

B-on objects after dehydration.

C-on objects after the first fire. ( <https://saleh-atop.blogspot.com/2013/12/blog>)

The clay lining is not only applied to objects and is in a wet state, but linings are applied in three cases but with some differences in composition and material of the clay lining and these conditions are on the body in the binding phase, on the body after dehydration, the body after the fire .

Archaeological finds carried some pottery that indicated that the first man was interested in the decoration of his pots, and that he used liquid folds or linings to give an aesthetic glimpse of his pottery products, the Greeks created liquid clay (lining) of orange red and shiny black, and was commonly used from (400-1000 BC), and the decoration in this way was similar in all works in all works in the world's civilizations as In the form of (1, 2)



Shape (1) a pot made in Cyprus 18 cm high hand-formed and equipped with a well blended clay lining it has a cream floor and ornate edges, currently located at the University of Sydney Museum in Australia.

(<https://up.nooredu.com/uploads>)



The shape of (2) a jug made in Cyprus painted with a 31 cm white paint is currently present in the University Museum Sydney, Australia.

(<https://up.nooredu.com/uploads>)

Since the word segrafito is derived from the Italian word segrafito, which means "scratch", this technique has already begun in Italy and dates back to about the 15th or 16th century, and the segrafito played an important role in Rome during the Renaissance and was often used by the famous artist Caravaggio and his partner Matorino da Ferenzi, and the artists initially began using segrafito on the exterior of the buildings, and used it to create incredibly detailed frescoes on the facades of dwellings and shorts, there are still incredible examples of segrafito technology throughout Italy, particularly in Florence and Pisa.

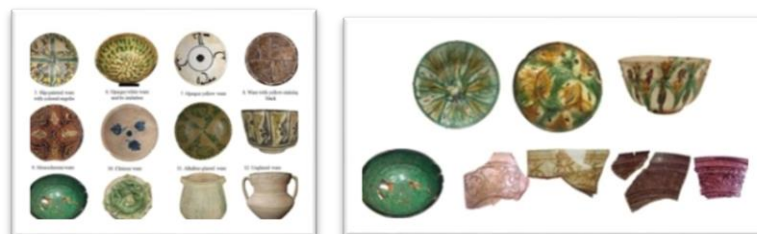
segrafito then moved from the main painters and builders of the Renaissance to use it in other areas, for example on decorative photo frames, scratching in gold leaves, and of course ceramics, producing some of the oldest ceramic pots from segrafito in northern Italy and later in Pisa, where they began to circulate throughout Europe, segrafito was also very famous in the Middle East, particularly Iran, which developed some of its types of segrafito.  
(<https://www.thesprucecrafts.com/what-is-sgraffito>)



During the renaissance of the 16th century in Italy, segrafito was used on the walls in Europe since classical times and originated in Africa and Japan, and came to Europe across the Middle East, and because Muslims were forbidden to eat in any metal utensils, they developed the decorative side of pottery to a high degree, including the use of segrafito decoration, and Potters from North Africa and Spanish potters were imported into Italy to share their skills and techniques, and Spanish Muslim potters fled to North Africa, Italy and Byzantium, where their knowledge merged with the techniques of local potters to create new and exciting styles of pottery for Renaissance patrons of art.

One of the reasons Italian potters used graphitos was their desire for a beautiful white surface to decorate, just like porcelain, but the only white clay they had was not strong enough to produce ceramics, so they made their dishes and pots of easily available red clay, covered with a white dish (liquid clay) to get the precious white surface to decorate. (<https://www.veniceclayartists.com>)

A unique collection of ceramic pots decorated with sgravito technique was found at the Metropolitan Museum, where Charles W. Wilkinson classified twelve sets of pots (shape 3.4), most of which were undoubtedly produced by porcelain ovens discovered near the old city itself and these relics belonged to the city of Nishapur, Iran, where the objects were of high aesthetic quality and displayed high crafts manliness.



( Figure 3) Examples of Charles W. Wilkinson's Pottery Rankings





(Figure 4) Sultana with decorations scattered in green, yellow and brown, 10th century. Iran, Nishapur. White layer, engraved and sprayed with multicolored glass under transparent glass coating (segrafito tools); H.2 7/8 inches (7.3 cm) in diameter. 10 1/4 inches (26 cm). Metropolitan Museum of Art, New York, Rogers Fund, 1938 (<https://www.metmuseum.org/blogs/ruminations/2015>)

**- Contemporary ceramic art:**

Distinguished by its distance from the traditional form of construction and the development of various new techniques that influenced the contemporary ceramic form, the techniques had an intellectual, symbolic and expressive role in showing the aesthetic and expressive aspect of the material where the potter created new ways in form, color, texture and technology where he used color, technical, texture and artistic treatments to suit the spirit of the times, the potter stripped the shape from the functional point of view and will prepare new ideas to express aesthetic values through the technical privacy of each work and materials used (Ali Falah Al-Sultani, 2013, p. 50), and the ceramic of fine arts in which technology enters as a fundamental factor in terms of plastic and aesthetic construction and is a good engine distinguished from the other areas of creativity. (Jean-Marie Ozias, 1983, p. 176).

Contemporary ceramics are characterized by the diversity of technical treatments (segrafito), which in turn consolidate aesthetic values through their connotations achieved in the manifestation of the form in addition to the experience of the artist and his ability to control his materials used and as a result leads to the achievement of ceramic forms with high aesthetics as in the following forms:



(Figure 4)  
Jane Cartwright, triple



(Figure 5)  
tumblers vase



(Figure 6)  
italian stoneware vase

**- The relationship between technology and the concept of beauty in art:**

Art and its great overlap with science represents a combination of art and practical techniques that lead to the production of beautiful and distinctive works of art through the technique that expresses the artist's ideas. (Ali Elmligi, 2019, p. 87) Technology in general plays a key role in the lives of individuals and societies and contributes to drawing human perceptions of the universe and the world in which it lives and it pours into the human soul, consciousness and experience, technology is a performance of human thought in growth and development (Ahmed Fouad Pasha, 2004, p. 63), The artist did to plan in advance his artwork and to follow a practical and systematic imposition and to use the best approach to deliver it to the best results and the closest expression of his idea to make an impact on the recipient.

(Ramadan Dyes,2001, p. 113) The system of artistic expression depends on the elements of the artwork (alone form, work,ore) and the intermediate element of physical and moral units and their rules, and the element of values (balance - rhythm - harmony) i.e. the show of the beauty of the artwork depends on the technique and how the artist can work with it.

**- Ceramic exterior surface treatments:**

It is a set of processes, skills and applied or cognitive theories necessary to produce ceramic pieces, from the selection of the ore formation (clay) to the raw materials included in the compositions of glass paints to become an integrated existing product, the treatment of surfaces in the field of ceramics is diverse and has many possibilities whether in the wet stage or the stage of binding or dry stage or pottery, each stage has its characteristics characterized, producing special effects may appear in the stage without others (Inas Al-Natuh 2017.)

**- Colorful clay linings :**

Colored clay linings are one of the main ways to apply decorations to ceramic shapes, and the lining is either light in color white or colored whether dark or light color, as well as help the silica-rich lining to level and stick to the glass paint Easily, the lining is a term called clays in addition to oxide of colored metal oxides, mixed and then mixed with water and drained well, then painted by models to be covered or colored with a thin layer of them and in the case of binding.(Abdul Ghani Al-Shall, 1960, p. 64),clay linings play a major role in decorations and their diversity, and can be successfully exploited in the role of education, because of their vivid excitement and amazing results.

**- Materials used in the preparation of linings:**

The materials used in the preparation of linings are divided into three types:

a- Clays are the basis of lining installation.

b- Bleached materials are used for fairly light linings.

c- Colored materials are different metal oxides that are mixed in certain proportions to get the desired colors.

In addition to some smelters are added in small proportions to the linings to help stick to the bodies.

**A- clays**

There are two types of clay that can be used to get suitable linings:

Type 1: Light-colored clays such as ball clay (Paul Clay) and kaolin.

Type 2: Red clays because they contain varying proportions of iron oxide, such as red aswan and widower clay (Armenians). (Allam Mohammed Allam, 1964 , p. 165)

**b- Bleached substances:**

Bleached substances are used when the potter wishes to have a light-colored lining that is not provided by mixing ball clay (urine kidney) with kaolin clay, so he resorts to adding a percentage of up to 35% and may be lower than this rate as needed from bleached substances.(Saeed al-Sadr, 1948, p. 22),and of the bleached substances, which are characterized by their bright white color: (calcium carbonate- silica- feldspar- zinc oxide)

**c- Colored materials and their proportions in clay linings:**

Colored materials are metal oxides that add varying proportions to the linings to obtain the desired color, whether the lining is of the type used on the objects and is in the stage of manifestation or after drought or the first fire , and to obtain the desired colors the different metal oxides are added to the linings bearing in mind that the ratios are adjustable either by increase or decrease, depending on the degree of color required.

- **Color dyes:**

They are colored crystals by one of the transitional elements and the finely grained ground pigments are added to both pre-level objects and glass coatings after adjustment, and if used in coloring the clay bodies they are added as they are" ( Khaled Sirajuddin Fahmy, 2000 p. 17) colored crystals made of dyes must be highly chemically stable if they have to resist the effect of added glass paint then to work at another stage.

**Types of oxides involved in the installation of linings :**

- **Tin oxide:** Gives white color (the color of its powder before burning white tends to gray).
- **Chromium oxide:** Gives the color green (color of its powder before burning grassy green).
- **Manganese oxide:** gives violet color and shares the output of black) the color of its powder before the violet burn tends to black.

- **Calcium oxide and calcium carbonate** : it gives white color (the color of its powder before burning white ).
- **Iron oxide**: gives the brown color inclined to redness and participates in the output of black (the color of its powder before burning reddish brown).

#### **Installation of linings and colors:**

This type of lining applies to the work and is flog any coherent before the dry phase. There are many types and colors of linings and what we will mention is the easiest to install and install from:

- **White lining**: 65% body clay + 25% coulin + 5% tin oxide + 5% calcium oxide or calcium carbonate.
- **Red lining**: 65% body clay + 20% red clay (if the body clay is red placed 85% ) + 15% iron oxide .
- **Green lining** : 65% body clay + 20% kaolin + 15% chromium oxide .
- **Black lining** : **60** % body clay + 25% red clay (if the body clay is red 85% ) + 10% iron oxide + 5% manganese oxide."(<https://saleh-atop.blogspot.com/2013>)

#### **Types of colored clay linings:**

(Clay linings, glazed clay linings, terraces).

##### **1- Clay linings:**

One of the characteristics of colored clay linings is that they are given soft and dense areas of fixed colors, usually in the binding phase, and can also be added in the dry phase or in the case of burned pots initially, in which case the content of clay is reduced in the composition of clay linings, and is replaced by flaspar, in addition to other materials, in order to prevent excessive contractions causing the lining to peel away from the pottery body. (Pan davis, 1998, p103)) The clay is covered with a thin layer of lining, after drying burn in the oven.

## **2- Glazed clay linings:**

A composition of clay linings can be prepared to become dense and similar to glass paint, called glazed clay linings and settle at high temperatures, and the higher the temperature the closer the lining to the glass coating, and can be considered a set of clay materials and some other smelting-assisting materials that merge together sufficiently when burned so that they can be called the glazed clay lining where it is a case between the clay lining and the glass paint. Heba( Mohammed Ibrahim Shehata, 2001, p. 97).

## **3- traseglata:**

The terraces represent a type of clay linings as they are semi-grotesque, of a completely different nature from normal clay linings because they lead to rough semi-grotesque surfaces, and can be painted before burning, and are applied after burning methods, and it is common to use red clay in their composition although most types of clay can be well utilized, and after the fire show a thin layer that is reducible, which turns its color into dark black color, and looks light color when it is available and the composition of clay linings From highly finely grained clay mixed with water that can be used with or without colored materials (previous reference, p. 98).

### **- How to prepare linings:**

1- Sift the materials used in the preparation of linings with a narrow wire sieve, in order to avoid the strange materials that are in the ores .

2- The process of weighing the materials continues accurately, and this requires ensuring the integrity of the balance, with the weight and ores being carried out in their dry state.

3- The raw materials are placed in the dish tool (hun) and the dish is done well on dry, until the mixture is fully homogeneous, and if the formula contains colored materials it should be milled individually, especially cobalt oxide and copper oxide, due to the hardness of their atoms, then add the colored to the mixture and fold again on dry, until the mixture becomes completely homogeneous.

4- Add to the mixture the amount of water required to relieve it and become in the liquidity of tahini, taking into account the liquidity when adding water as required.

5- The mixture is then left soaked in water for 24 hours before use (Said Sadr, 1960, p. 121), until the homogeneity of the ingredients is done.

- **Lining storage:**

The process of preparing the lining is difficult as it requires a lot of effort and time so we can prepare a large amount of it and store it as the lining and its components are not perishable or decomposition, the longer it passes the more homogeneity between the components is stronger where the fermentation process is done as the fermentation process is the result of the cohesion and homogeneity of the particles of the components forming the lining.( Christy, R, 1971, p57.).

- **Methods of applying colored clay linings :**

**1- Scraping and slitting in the lining (sgraffito):**

The methods of scraping the lining from the surface of the ceramic body in Italy during the 16th and 17th centuries, and scraping a type of dry drilling carried on a lining that is different or compatible with the color of the body of the body," by covering the piece with the lining contrasting with the color of the work body, then left to dry completely, and then apply to it the design to be done, and then reveal the lining either for the design or from the surface of the body (floor) where the design then appears from two colors, as can be applied to the design to be done, then reveal the lining either of the design or of the surface of the body (floor) where the design then appears from two colors, as can be done. The use of slitting in the lining after applying the design to be done, and this design is designed with a pointed hasen tool and the design appears in clay color." ( Frank Hamer, 1979, P. 75.)



**- Slitting and scraping in the white blanket:**

We find that it is one of the most important techniques that are related to Islamic art and despite the simplicity of this technique, it carries within it many aesthetic values associated with the vitality of design and innate performance, the style of slitting and scraping in the white lining is one of the practical solutions to avoid the quality of red clay, which has a high percentage of impurities, especially iron oxide, which gives a dark red color and therefore the floor of the body becomes not suitable for coloring or painting, so the Muslim artist came old and new To cover the red body with a white lining to resemble the quality of white clay, which is lacking in the Middle East region but is available in the Far East region (Japan- Korea - China) so we find that the search for white clay simulation is the main reason for the emergence of the technique of covering the red body with a layer of white lining and added to it the style of slitting and abrasion in the lining, which reveals the color of the red body in a dark color explains the design drawn based on the color of the white lining and the color of the original red body dark from the lining On the body of the red clay shape (8)



The form of ( 8) the technique of slitting and scraping in the white lining in the old.

As (Shape 9) shows the old method either by applying transparent paint without the presence of colored oxide or with the application of transparent colored paint.

(Copper oxide) above the slitting and scraping and it gives a good result of the presence of one color in two degrees, the color or light degree appears on the white lining while the dark degree on the floor of the color of the red body and the contrast in color lends vitality to coloring although the design aspect of the subjects drawn either plant or animal or for people is inspired by the old Islamic artistic rules through the use of the unit and its repetition on an invisible network of the eye directly and the use of zooming and zoom or negative and positive For unity in order to break the monotony of the repetition of the unity used in painting, we find that the artistic style is more related to the period of the Fatimid state, whose artistic origins extend to Sassanid art coming from Iran using one degree of transparent colored paint.



Shape (9) slitting and scraping technique with the use of transparent colored glass coating.

**- The technique of slitting and scraping in the lining depends on:**

- The composition of the white blanket applied to the red body (Aswan).
- The state of the red body applied to it by the white lining (leden - volume - dry - burned).
- The method of applying the lining to the body (spray-pouring- covering - brush).
- The thickness of the lining layer on the red body.
- The quality of the instruments used in slitting or scraping (wooden- metal- plastic).
- Slit lines (thick- thin).
- Types of lines used in slitting (straight- broken - curved - circular - spiral).
- The direction of the lines (main- horizontal - slanted).

- Inter-distances between slitting lines (regular- gradual-random).
- Good distribution of spaces with slitting lines to achieve contrast (heavy- medium-light).
- The speed of performance depends on the quality of the design and it is better to speed the performance to get the spontaneity of the lines in order to break the edge of the regular lines used in the slitting.

In the technique of slitting and scraping in the white blanket and with the use of color it is better high fire which reaches 1080 degrees Celsius because of the good results first in terms of the rigidity of the ore in high temperatures in addition to the strength of color and the luster of transparent glass paint.

**- Slitting and scraping in the lining are old in design:**

We find that the majority of the elements used in the drawing of dishes are elements inspired by the environment such as plants, animals or birds or monitoring of customs and celebrations of popularity and religious rituals, and we find that the element painted as a design unit occupies the vacuum of the circle (dish) with a ratio of the size of the element within the circle and the use of the foundations of design (repetition - negative and positive - miniaturization and zoom)" (diau el din Abdul Dayem, p. 3-5)

**2- Pouring and covering (immersion):**

If it is necessary to cover both the interior and exterior parts by pouring or immersing, the inner part must be covered first, then leave the pot to dry, before starting to implement the outer part, so as not to collapse, and the uncut pot is dipped in a state of dryness or moisture so as not to break the mud pot.

### **3- Brush painting ;**

The moment is covered in one color of the lining, and after about an hour, before the lining is dry, we brush a decorative design using another lining of another color darker or lighter, so with the observation of making the lining in which he paints somewhat coherent, and one of the most important old methods of applying the lining with brush is to get a transparent layer, and the touches of colors will appear after the transparent glass paint "Robert Fournier" 1992, P.37.) There are several factors that affect the results of this technique: (brush size - brush hair shape - roughness or softness of the brush)

### **4- Use of stationery: (liquid clay pump):**

It is a way to apply the lining to the work surface using a syringe, rubber compressor or paper stationery, during which prominent decorations can be made on the work surface. ( Gelenn. C. Nelson, 1984, p116.) Its density should be higher than the density of the normal lining in which the shape is covered, so as to facilitate its cohesion on the clay surface and not to slip, which earns the decorations some prominence and embodiment. It is left to dry completely in preparation for the fire, and this method in the application is given a variety of contacts that may not be achieved in another way.

### **5- Spray gun:**

"Pistol spraying technology is a technique that has special aesthetics, where it has the possibility of obtaining an almost infinite appearance, so that the resulting effect ranges from very fine lines to covering large areas, and different contacts ranging from coarse to soft, as the purpose of using an air pistol is the soft staging of colors, so the unintended flow of colors will destroy this effect and visual deception that the artist aims to obtain." (Peter Lane, 1995, P.733.)

### **6- Camping:**

It is a way of decorating clay objects with linings to give effects similar to marble particles(. Abdul Ghani Al-Shall op cit, p. 66 )and to implement this method uses two (or more) colors of the lining of different color.

- **Techniques for applying colored clay linings**

**1- Use of the effect of coarse brush on the surface of the clay lining :** The coarse brush is used in colored and white clay linings to make touch effects, and this method has been used in the past, as well as in contemporary porcelain.

**2. Clay lining blow:** "A multi-layer effect can be obtained by blowing on the surface of the busy during the application of the clay lining to it, and this can be used as a basis for further surface treatment."(Rebert Fournier, 1977, P 172)

**3- Applying the lining in the badminton way:** this technique uses liquid paints of different types, to give effects of a different sense in the form of zigzag lines of different directions and paths, and this is done through the use of a flexible tool such as the middle sweat of the feather.

**4. The flow of the colored clay lining on the surface:** "One of the techniques used in the treatment of ceramic surfaces by liquid clay linings (liquid paint is distilled in the form of large drops along one of the edges of the dish or the shoulder of a stereoscopic form, usually on a floor of a different color, and then the paint drops run along the dish or down both sides of the shape, resulting in liquid shapes with an aesthetic appearance."( Robert Fournier: Op. Cit, P 242).

**5- Combing:** A multilateral tool or pointed teeth is used, and there are many tools used in combing technology, such as food fork, hair comb, bird feather or piece of rubber or skin for use in combing the colored clay lining layer and it is still in a liquid state.

**6. Flying linings:** "The paint is poured on the clay slice and placed on the rotary wheel and then the wheel is managed quickly until the wet paint is blown away from the center, so that the shape of the lining is based on pure coincidence, and the Dutch potters in Pennsylvania used this method to make dishes."( Daniel Rhodes, 1973, P 243)

**7- Camping:** One of the techniques that contain a measure of automaticity resulting from the process of unintentional mixing, which occurs as a result of shaking the surface filled with liquid clay linings to create rich color interferences that add unexpected aesthetics to the surface.

**8- Sgraffito:** A pottery decorating technique first used in Egypt and the Middle East in the 7th century to make pottery look like precious metals. First to become pottery and then cover it with transparent glass paint. (<https://thatsarte.com/blog/highlights/how-is-sgraffito-pottery>)

**9- Removal using sponge:** "Sponge is used to create a negative as well as positive image and this is done by placing wet sponges on the part added to the colored clay linings or paint material until that part begins to melt, after which the sponge is lifted to remove the paint layer that exists at the same time. (Hiba Muhammad Ibrahim, op cit, p. 137).

**10- Refinement:** The surface of the outer vessel is scratched while it is in the binding phase by a soft solid surface, and is refined in the form of a circle or straight movement, so that the work is in a small area and thus the vessel as a whole is refined.

**11- Distillation:** The liquid lining is placed in a pot and liquefied on the surface of the shape, to get a more streamlined model, and the clay can be formed first and then covered with clay linings after it dries sufficiently, and this method is considered easier to form but harder to distill." (Robert Fournier: Op. Cit, P 243.)

**- Color clay lining insulation techniques:**

Insulation is carried out either by paper, by stencil, by latex, or by floor burnish or wax, in order to create an insulating layer that prevents the coating layer from reaching the body of the shape, "insulation techniques are used to obtain a floor rich in aesthetics compared to the color design on a simple floor, and the simplest materials can be used to implement the technique of insulation through which such as newspaper papers, foliage and plastic other than materials commonly used in this technique." (Robert Fournier: Op. Cit, P 253).

- **The purpose of using linings:**

1- Makes the body more tighter against fluids and makes the surface softer.

2- Drawing decorations on the body in the skin stage on the original clay color or on the background of a bellies of another color contrary to the color of the decoration

3- Give an acceptable color to the fold that is made of it instantly. ( Saeed al-Sadr, op cit, p. 40).

4- Provide creative opportunities and new ideas for the application of linings.

5- Hide the rough surface appearance of the fold. (Allam Mohammed Allam, op cit, Part II, p. 236).

- **Drying linings on clay pieces:**

One of the most important processes requiring attention, especially for the pieces in which the linings were used as a complete cladding on the clay pieces, during the rapid drying process, the water evaporates quickly and the lining shrinks first before the body of the original piece is dry, resulting in the separation of the lining layer from it, resulting in damage to the piece (<https://up.nooredu.com/uploads/157599508738762>.)

**Drying ceramic pots:**

**First: Drying the flat shapes:** by placing them on a network of high wire from the surface of the place where they are dried until they are exposed from the top and from the blade of the air of the place to one degree and in the absence of a wire mesh, pieces of gravel are placed over the shapes so that they are not subject to curvature.

**Second: Drying stereoscopic shapes:** by covering the shapes with a set of plastic bags and then from time to time these bags are lifted one by one at intervals of one half day. (<https://art-nony.blogspot.com/2014/05>)



- **Glass paint :**

"The glass composition used to cover porcelain of all kinds is a mixture of several materials that are weighed or asked, and are added to each other in certain proportions, each of which is added for a certain benefit, all aimed at the composition of the body or outer cladding of any kind." (.Al Sayed Mohammed Al Sayed, 2006, p. 12)" is a layer of glass or glass crystals covering the surface of the ceramic body" (Wajih Cain, 1973, p. 2), ceramic objects before taking any superficial treatment to produce a color that is originally colored, either white, yellow, gray, or brown due to the presence of some colored metal oxides in ceramic objects.( Peterson, susan, 1998, p 20.)

**Second: Application framework:**

The practical application on a sample of the students of the fourth band includes the course of the technical project ceramic for the Faculty of Quality Education Department of Technical Education at Alexandria University in light of the findings of the research machine during the theoretical framework of the study of research, which aims to show the philosophical and creative dimensions of contemporary ceramic formations based on the techniques of the sgraffito in the formulation of Ceramic.

The researcher in the techniques of sgraffito found multiple formative possibilities compatible with the artistic ideas that he is heading to, it achieved the ease of handling the material, in addition to saving time, effort and costs during the implementation of stereoscopic artistic formations that included several characteristics combined contributed to the expression of aesthetic dimensions, which prompted the researcher To experiment and discover the possibility and properties of the raw material in a variety of ways of composition and expression to identify the characteristics of it, these works of art of the experiment may add a knowledge aspect about the nature of the formation of the opacity and the nature of dealing with it to be a knowledge area that students can see to benefit from it because of the diversity and multiplicity of sources of composition embodied in the opacity.

**Limits of experience:**

The researcher applies a practical experience to the students and in which the researcher deals with the results of the analytical study of the models of ceramic plastic works based on the technical method of graphite and the theoretical framework of research in the design and implementation of ceramic work from the implementation of the students of the fourth band. In the Faculty of Quality Education, the Department of Technical Education at Alexandria University, numbering 10 students to produce ceramic work with the technique of sgraffito in the reality of the work of each student working to form a ceramic dish in the urine coating of one of the artistic trends and the integration between the techniques of manual and mechanical formation and printing techniques with the techniques of sgraffito.

The researcher has made a range of technical applications with a experimental direction through the formation of asswani clay and polymeric clay and carried out a series of simple ceramic shapes, perhaps in the choice of the researcher for the technique of sgraffito enriching the field of contemporary ceramic composition, the researcher conducts the experiment to provide some decorative solutions to show the possibility of benefiting from the ceramic lining to enrich the surfaces of ceramic shapes as it gives various effects and a lot that can enrich the field of ceramics by finding decorative solutions and design suitable for contemporary arts and also improve the hierarchical properties of the lining.

**The researcher conducts an experiment based on the following themes:**

- 1-Formation of aswanli and polykli clays that help to achieve the concepts reached by the research.
- 2-Rooftop art treatments that include decorations, color and texture using ceramic lining (Sgraffito).
- 3-The work of a range of ceramic shapes based on the combination of decorations and techniques, and the treatment of surfaces in the style of slitting and scraping.

Through which the researcher tries to develop a technical and intellectual organization in dealing with the technique of sgravito to benefit from it in the field of experimentation in technical education, the experimental technical practice of the researcher has been subjected to a intellectual and technical basis.

**First: The intellectual basis of experimental technical practice:**

(a) The application of the thought and philosophy of the artistic style of sgravito in ceramic composition to obtain rhythmic variables of expressive value with the thought and philosophy of abstraction in porcelain.

(b) Technical applications are linked to technical education objectives

**Second: the technical basis of technical practice**

The technical basis of the experiment is divided into two parts:  
a - the formative idea of artistic practice.                      B. The plastic boundaries of artistic practice

**a- The plastic idea of artistic practice:** The artistic practice is based mainly on the implementation of a range of ceramic shapes using lining abrasion (Sgrafito) which helps to give drawings characterized by freedom, fluency and direct drawing on the clay body, which is commensurate with modern and contemporary art, the lining can make the ceramic shape a strong-structured painting.

**b- The plastic limits of artistic practice:**

A- The researcher uses in the implementation of her applications the raw material of clay aswanli and pololi.

2- Use of linings on ceramic surfaces in the binding phase.

3- The use of light as a formative value through the use of decorative methods slitting and scraping in the lining (Sgrafito), which carries many aesthetic values associated with the vitality of design and innate performance.

- **Classification of ceramic shapes in applied study:**

Through the previous study it was found that the technique of slitting and scraping in the lining is one of the most important techniques that are related to the Islamic heritage and carries within it many aesthetic values associated with the vitality of design and innate performance, which is an important feature in the treatment of ceramic surfaces, the search for honesty in performance comes from topics related to either the ancient heritage or the environment expressing the place, all interlocking elements gathered in the output of the ceramic hand shape.

The surface treatments of ceramic forms are linked to the structure of the form and its content based on cultural and intellectual references related to the artist himself, so in this research we can benefit from the use of sgravito technology in obtaining color and texture effects in the production of ceramic forms of an aesthetic nature , the ceramic forms of each have features and foundations that make it different from the change of fine arts, and the current research has proved the direct technical path of the color effects, texture and role played by Oxides and color dyes in addition to glass coatings and treatment of ceramic work surfaces and aesthetically upgraded. **Third, the dishes: the forms produced by his eye illustrate the experience in achieving:**

- Several formative entrances resulting from the application of sgravito technology contribute to achieving the research objectives with the results of decorative composition enriching the field of ceramic formation that can be applied and used in the field of ceramics in artistic education.

The following reviews the most important technical experiments carried out by the same experience in the application of the technique of slitting and scraping with the lining and through these works the researcher shows the various modulation methods of sgrafito technology and what is the educational benefit of each experience so that it can be used in the field of ceramic formation.



**The practical experience of the students of the technical project department of technical education faculty of quality education - University of Alexandria.**

- Models for some different stages of the technique of slitting and abrasion with the lining (shapes 1-3)

a- The stage of transferring the design in shape through tracking paper



b- The stage of applying slitting and abrasion with the lining on the surface of the shape before drying (shapes 4-12).



- The end shape of the multiple plastic formulations of ceramic shapes with sgravitotechnique (shapes 13-16 ).





**Results:**

- 1- More than one technical method can be combined in the decoration of a single ceramic shape to achieve the aesthetic and decorative values of clay linings
- 2- The use of sgraffito technology helps combine two burns in one heartburn and also save oven effort and time. .
- 3- Through its applications, the researcher was able to access new ceramic formulas using sgraffito technology.
- 4- The use of colored clay linings in decorative formation requires special processing, drying and fire so as not to separate from the surface of the ceramic shape.

**Research recommendations:**

- 1- The researcher recommends the inclusion of various techniques that rely on colored clay linings within the plan of ceramic teaching programs in specialized colleges because of their ability to give integrated experience in the decoration of surfaces.
- 2- To study the various fire methods for the work carried out with sgraffito technology and its impact on the color of the linings after the fire
- 3- Encourage and conduct several researches to use local ores and the treatments they need to improve their natural properties.
- 4- Delve deeper into the study of different oxides and dyes to obtain several different colors and tones that enrich the field of coloring linings and the diversity of their grades.



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