



THE HYBRID "INNOVATIVE TECHNICAL EXPERIMENTS TO INTEGRATE RELIEF PRINTING MEDIUM FILMS WITH THE TECHNIQUES OF BICHROMATE PRINTING ON SILKSCREEN"

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ABSTRACT

This research addresses creative, technical and experimental solutions for printmaking to integrate silkscreen printing techniques with relief printing to produce a creative hybrid formative work. Therefore, the researcher printed thin transparent films in black fatty ink by using relief linoleum blocks, then he used them as thin films for bichromate printing on screen printing plates, which is known as the silkscreen printing. Thus, the researcher attempted to explore new horizons throughout these applications and preparing innovative experimental space for artists by discussing this applied research, through which the researcher transforms the monochromatic relief prints into multi-colored prints executed in silkscreen technique. This hybrid printmaking is distinguished by its content and form of distinctive graphic state for the relief printmaking and its specifications of engravement and cuttings. This hybrid printmaking added special status because of those colors that printed in silkscreen technique. The research reviewed some experiments of hybrid printed works; such as the mixed media, interactive, installation, assemblage and hybrid arts. The researcher produced some colorable designs derived from girl fashions as suitable visual stimulator for assessing his technical experiment and proper for selecting the color mixtures of the hybrid works, which were invented throughout using the experimental creative technique.

Keywords: Relief-printing, Hybrid, Silkscreen.

1. INTRODUCTION

In fact, the printmaking arts are being characterized by the multiple, varied and many techniques. This diversity is the actual reason behind the artist's trend towards the printmaking. Indeed, these techniques made the printmaking as the real inspiration to the artist, in light of its distinctive visual production, in addition to the graphic state and various effects that produced from this technical experiment.

Although each type of printmaking is independent at its own and includes dozens of particular methods and techniques enabling the artist with limitless experimental space, whether these techniques were traditional, untraditional, modern or classic, many artists throughout history attempted to integrate and mix between the different techniques of printmaking in order to reach more innovative visual effects, and many artists succeeded in that regardless the technical difficulty and the high cost of these experiments.

Actually, the strict instructions of the printmaking traditional schools drove the artists to follow the authenticity and became tied with the traditional teachings of printmaking, in addition to restricting the aspirations of liberal artists, what weakened many of technical experiments because of the obligation to

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strict academic approaches. Thus, many innovative experiments stayed restricted by the traditional techniques and the prevailed specifications of traditional printmaking, in light of its formation, production and features. But the experimental artists followed another way through experimentation and not obliged to the traditions, aiming to achieving their expectations and dreams. Subsequently, the researcher attempts here to suggest a new and innovative formative vision, as a kind of experimentation, to mix and integrate between two kinds of techniques; the relief printing and silkscreen, but in a different processing. This was not possible before, unless the researcher made some special researches to produce some assistant equipment and chemical compounds to help him in beginning his research. This research is a fruitful production of a series of technical experiments and published scientific studies to find a creative technical hybrid. As wee, the researcher reviewed the previous studies about the manufacture of silkscreen equipment, the tools of light exposure and drying cabinets, in addition to preparing printing pastes with particular properties. Besides, the researcher made some relief printing equipment such as the relief printmaking hydraulic presses to reach special effective specifications for printing thin films from relief printmaking blocks, and also making and developing the printing pastes according to the requirements of the ongoing experiment. The printed art work was displayed in a creative technique, away from the constraints of traditional ways and in a visual method that relate to the different sciences of technology.

By studying the history of developing the contemporary art, it is noted that all attempts to link between art and academic sciences led to great achievements, and many artistic communities and associations had considerable influence, such as the associations that linked the technological science to art. The German philosopher Walter Benjamine (1892-1940) was the first who called to the importance of technological sciences in art, and expected the role of modern industrial techniques, the technological sciences and their impact on all fields of art, in light of the continuous development and their impacts on art and artists. He alluded also, through his writings, to the nature of art in the age of mechanical reproduction and its impact on changing the traditional artistic concepts and to be liberated from the sources of power that controlled the artist, Mary Lynn Kotz, 2004.

The early attempts to integrate and mix between the different artistic techniques and the technological techniques was in 1954, when emerged the "Combine Painting", the first attempts of the American artist of German origin Robert Rauschenberg (1925-2008) to hybridize the graphic techniques, beyond their traditional pattern, into new molds or the so called Assemblage Art, Hybrid Art of the Mixed Media Art, and the artist introduced the Interactive Art, in addition to the printmaking techniques, particularly the silkscreen through formative blocks, such as sculpture, painting and more interactive artistic trends such as the Kinetic Art and Performance Art. Sam Hunter, 1999.

Many private associations sought to match between art and technological sciences in order to free the arts from the tradition forms. Tho most prominent associations were (EAT), the abbreviation of (Experiments in Art and Technology), which founded by the Swedish engineer Billy Kluver (1927-2004) who concerned with the technical aspect and the liberation from the tradition, as he headed the association as a chancellor. Then, Kluver met Rauschenberg who showed great interest in all technical and modern aspects, particularly his clear tendency towards science, creative and advanced technology throughout the content of his art works in coincidence with the same goals of (EAT) association. So that, Kluver offered him the cooperation with the association that included also the American Robert Whiteman (Born in 1935), and the American engineer of electronics Fred Waldhauer (1927-1993), as they produced new printmaking works of modern and innovative blocks, in addition to other magnificent production from this cooperation. Walter Hoppes and Susan Davidson, 1997.

The liberated art molds and innovative technical trends allowed the opportunity for the artist to impose his revolutionary vision and creating new horizons for the printmaking arts and their displaying methods,

in addition to the method of producing the printed copies. This could be indicated from works of some artists who displayed their works in public places or through more interactive methods on the moving vehicles, trains and even boats. This added to the artistic work considerable interactivity and kinetic energy such as the works of Caledonia Dance Curry, the American artist who born in 1977 and belonged to a street art group called (Swoon) that means euphoria, as this artist succeeded during short time in gaining international fame after producing printmaking works of more interactive, liberal and courage forms. Her works were characterized by their graphic impression and focused on the printmaking works, which were introduced to art installations in white and black colors by using wooden blocks through engraving the wood upon large volumes. Indeed, this artist was among few artists who used the printmaking media through the Street Art, especially her uniqueness in relief printmaking with paintings represent, mostly, people from popular environments such as children, old men and women. Then, the artist installed her works upon olden walls and wooden doors of old popular quarters and environments, in addition to her attempts to display the works upon mobile vehicles or floating sail boats resembling the works of Street Art and the interactive of Installation Art, such as the work of (Boat Punks), the installation that depicts public environments as a pile of rubbish in form of simple wooden huts, which look like floats. Roberta Smith, 2005.

Other countless examples allude to these attempts of renovation and aborting the classic and traditional forms, not only formality and the displaying methods, but also objectivity by developing the methods of execution. This trend of renovation could be destructive for a given idea or even a person who attempts to renew the mechanisms of implementation or to reach new printmaking technique. This research discusses this issue through implementing new free, creative and untraditional printmaking experiment. Hebe Vernon-Morris, 2008.

Through this thesis, the researcher aims to achieve the most acceptable results of distinctive visual effects after integrating and hybridizing the relief printmaking with the silkscreen techniques through the bichromate photographing then printing to get printed copies with distinctive visual effects that mix between the relief printing and silkscreen printmaking in a creative technical hybrid.

In addition to the pursued techniques through integrating the relief printing to silkscreen, the research presents more desirable technical properties, as the researcher succeeded in printing multiple printed repetitive copies of large sizes, in addition to producing colored prints on textiles of different thicknesses. The researcher managed also to produce colored prints on thin transparent films, what enabled him to achieve a creative vision by integrating between the printed copies with Assemblage Art and Interactive Art.

Philosophically, the girl clothes were the researcher's expressional stimulator after the magnificent diversity of colors and the different cultures that influenced the printmaking of girl clothes, and this was suitable for choosing the techniques of technical integration to test the research, as the visual stimulator was very suitable in light of the diversity of colors to achieve the expectations of researcher in reaching proper colorable designs to the experiment, especially these ornaments and colored icons, which were suitable for experiment.

1.1 Problem of research

The research addresses the possibility of integrating and hybridizing some of printmaking techniques together in order to break the tradition and for more technical and reperformance freedom, while the most desired goal is employing the aesthetics of relief printmaking and to be integrated with the aesthetics of silkscreen through innovative technical and formative vision. Besides, this research includes many attempts by using the printed copies to test the transparent and dark inks, printmaking foam inks, controlling the specifications of transparency and darkness, and to produce printing layers of high

transparency that could be used throughout the contents of new printmaking works. The researcher addresses also the problems of this research by implementing some works by using the printmaking techniques and equipment, which were made already to develop the applied experiment:

- Is it possible to integrate the relief printing techniques with silkscreen to produce hybrid printed copies of distinctive formative and expressional qualities?
- Is it possible to implement hybrid printmaking and then being used in performing art works with more liberal formative forms?
- Is it possible to produce printed copies characterized by the artistic authenticity via untraditional printmaking techniques and methods?
- Are the relief printmaking prints suitable to be transparent films for silkscreen printing?
- Are the colored prints suitable for implementing hybrid and interactive works?

2.1 Aims of research

This research aims to apply printmaking creative technical experiments to integrate and hybridize between the relief printing and silkscreen, and to produce prints of more visual effects.

3.1 The importance of research

The importance of research implies in creating expressional media and new multimedia horizons through different techniques and simple technical applications by developing printmaking performances and media in order to ease the integration of printing techniques together. In addition, the research aims to highlight the printmaking as an inexhaustible formative artistic field.

4.1 Methodology of research

The researcher followed an applied experimental method to perform creative artistic experiments.

2. THE BASIC TECHNICAL STAGES OF THE APPLIED EXPERIMENT:

The research presented a creative printmaking technical experiment divided into 6 basic stages, beginning with printing the relief printing blocks, which prepared by the researcher previously and printed only in black and white colors as the researcher was careful to engrave and cut simple and linear lines and ornaments on linoleum relief printing blocks (Fig. 1), as the researcher performed the printing process by using the hydraulic relief printing presses, which were designed and made by the researcher himself to perform such experiments in order to produce the layers of dark fatty black ink that will be homogenous on transparent calque paper.

Then, the researcher prints these films by using the bichromate sensitive emulsions on silkscreen plates to produce printmaking blocks from silkscreen that could be printed by using the water-based printing pastes on high thickness cotton paper. Hence, the prints are able to be colored by using the water colors or flowmaster pens to get removable colored designs. By removing these colors to plates of celluloid or Arkazul by Doku pens to print these films on silkscreens by using the bichromate emulsions in order to create multiple printing blocks for the same design. Then the stage of color assembly or the colored printing by assembling all colors upon one surface, as the researcher used different materials as printing media such as textile, paper and wood, this will be illustrated later that contains as well how the researcher invented a creative method to print upon textile. Thus, the 6 stages will be:

- 1st stage (Printing the relief blocks on thin films)

- 2nd stage (The light exposure on silkscreens)
- 3rd stage (Printing and coloring the prints, manually)
- 4th stage (Removing the colors or the color subtraction for the colored designs)
- 5th stage (The bichromate light exposure to the colored films and producing the multiple printing blocks)
- 6th stage (Assembling the colors or the final-colored printing)



Fig. 1: Panoramic image for some linoleum printmaking blocks that used by the researcher to print transparent films on calque paper

2.1 The 1st stage (Printing the relief blocks on thin films of calque)

This stage is characterized by making benefit from some old relief printing blocks, which are executed in white and black colors, to indicate the continuity of artistic experiments that could be developed and updated through the technical experiments. These blocks could be printed and transformed into colorable designs by integrating their technique into the silkscreen in order to produce the required hybrid.

Tools and supplies:

Linoleum blocks – 2-ton hydraulic printing press, designed and made by the researcher – Transparent calque paper – Fatty black ink, intended for relief printing – Petroleum solvent substances – Textile pieces as erasers – Printing felt, 8mm – Putty knife – flexible inking cylinder. (Fig. 2)

procedures:

Firstly, using the rubber flexible cylinder to ink the printing blocks by thin layers of fatty black ink on the upper surfaces of linoleum blocks, the high thicknesses must be avoided because of the considerable high pressure of hydraulic presses. So that, the rapidly drought thin dark black ink layers will be attainable owing to the high pressure of used press that pushes the ink particles through the pores of paper to dry rapidly, while the most important is using films of calque paper. It is undesirable to clean the blocks by using the organic solvents, which could be used only to clean hands and inking cylinder.

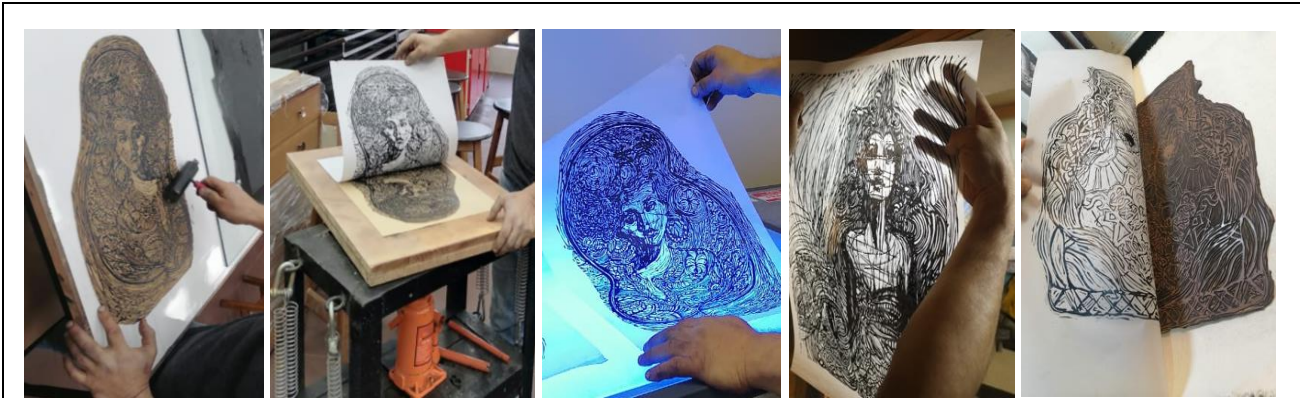


Fig. 2: Panoramic image for some transparent printmaking films relief printed from linoleum blocks on transparent calque paper by using hydraulic presses.

2.2 The 2nd stage (The light exposure to silkscreens)

After drying the previously mentioned films, it could be painted by exposure to UV rays on the light table, which designed and made by the researcher, on silkscreen plates by using the photo emulsion silkscreen sensor, this bichromate sensor was designed and made also by the researcher, then adding a little liquid soap on Polyvinyl acetate emulsion, violet water color and potassium bichromate. It is noteworthy that all light sensitive used substances were made by the researcher, what save considerable amount of money because these substances are very expensive, in addition to enabling more control to the properties and specifications such as the sensitivity to light, level of hardness and the proficiency of insulation layers. Thus, the researcher reached the comprehensively control to the procedures of experiment. (Fig. 3)

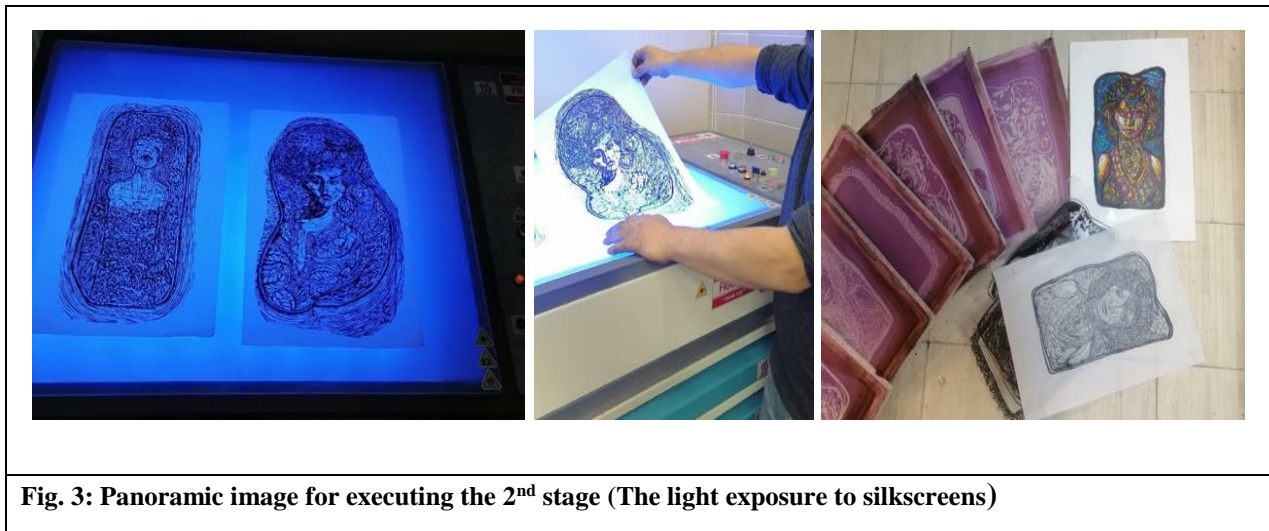
Tools and supplies:

Previously printed films on relief blocks – A wooden plate with a stretched silkscreen, screen no. 62. – Light sensitive emulsions - Gelatin stretching tool on silk – light table – drying cabinet, using the hot air that made and designed by the researcher and supplied by a timer and heat sensor.

Procedures: The sensitive emulsions are being prepare and transformed into sensitive poly gel by adding the following ingredients; 8 units of polyvinyl acetate, 1 unit of sodium or potassium bichromate, 1 unit of blue or purple concentrated water pigment, 10g of liquid soap for each 1000g. It is noteworthy that polyvinyl acetate could be found in form of white or transparent emulsion and known commercially as the white glue. The researcher preferred to use international brands, such as "Wood Bond" which produced by the company of modern constructions, as the other companies tend to add other hardener materials that look like glues but not adhesives that could be considered a commercial fraud by producing not compatible material to the experiment. As well, the researcher preferred to get the polyvinyl acetate in form of powder of cheaper prices that could be dissolved in warm water by continuous stirring while increasing the temperature gradually until getting harmonious gelatin well saturated emulsion, then to be covered for 24 hours and stirring it again as finally could be used as pure and reliable white glue, then we can add the sodium or potassium bichromate, then the pigment that allow to observe the mixture during the process of exposure and demonstration. The function of liquid soap is facilitating the demonstration process by easing the expulsion of poly gel particles, which did not expose to light. For more information about the procedures of making materials, substances and laboratory tools, the researcher published a series of researches about developing the laboratory tools and the supplies of relief and sunk printmaking, including specialized researches about silkscreen laboratories, then the relief and

lithograph printmaking, in addition to making the tools, materials and supplies, and how to reduce the technical and financial cost for researchers and the students of fine arts. According to the limitation of researcher, the researcher preferred to concentrated in specific topic, while the related researches are available on the published research of: Innovative Practical vision for developing the equipments needed for screen printmaking laboratories and its impact on expressive media, Sherief Mohamed Hosny,2023

Spreading the light sensitive emulsions on the silkscreens, then put inside the screen drying cabinets for 15 minutes to be drought. Then exposing the previously prepared films to light upon light tables for 5 minutes, then taking the plates to a screen-printing washout tank supplied with backlight to project the plates by pouring water in order to reach the final printing plate, which will be drought again inside drying cabinet to be printed then.



2.3 The 3rd stage (Printing and coloring the prints, manually)

During the previous stage, the printed silkscreen plates are supplied only with the black color by using water color pastes. The used printing cotton thick paper able to be colored by water colors or flowmaster pens. (Fig. 4)

Tools and supplies:

Silkscreen printing plates, which prepared during the previous stage – Thick cotton paper – Water-based printing ink for silkscreen – Black pigment – Printing squeegee – Heat gun.

Procedures:

The procedures are simple and direct by mixing the black pigment with the printing water pastes, without adding any hardener material such as the acrylic or binder to avoid blocking the silk pores, in addition they are unnecessary in printing paper, unless the printing material was textile. The researcher prefers to make the printing pastes himself for more control, as it should be noted that all the previously mentioned products were made by the researcher, what added to the experiment more control to the properties of materials and their accuracy.

After printing upon the cotton paper, it will be hydrated by using a heat gun, then to be colored by the proper colors manually. At this point, the researcher begins in transforming his colored design into new stage and making a real breakthrough by creating new innovative prints by separating the colors of these

designs to find unique design in light of features and formations to mix between the aesthetics of relief printing and silkscreen through a new and creative hybrid.

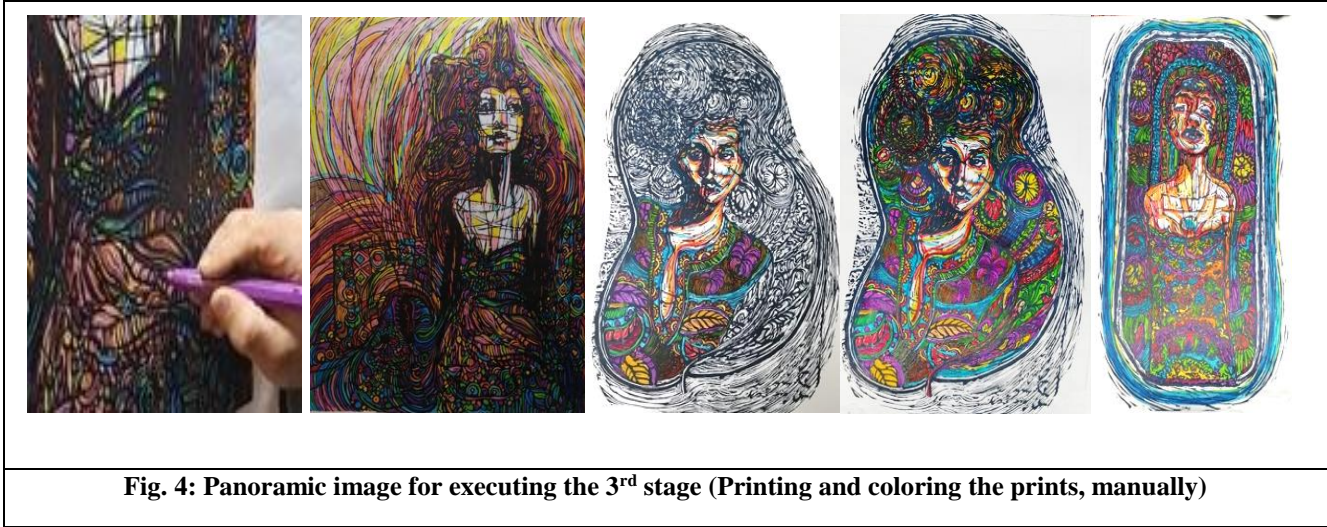


Fig. 4: Panoramic image for executing the 3rd stage (Printing and coloring the prints, manually)

2.4 The 4th stage (Separating colors, or the color subtraction to the colored designs)

After getting the colored designs, each color will be separated by using film chips of suitable plastics, such as Arkazul, celluloid, Esterlon, or even the transparent calque. The colors are separated by using a dark black or red pens, such as Doku pens or the dark opaque pen, which could be used for plastic transparent surfaces. The marks should be added to register the films and to avoid shifting the printing plates away from their registration positions.

Tools and supplies:

The previously prepared colored designs – Thin films of transparent plastics such as Arkazul, celluloid, Esterlon, or even the transparent calque – Dark Duko pens or opaque dark pens – Transparent sticker.

Procedures:

Each color is separated on a transparent film separately, according to the design. The sub-colors, which produced by mixing between two main colors in combined films, are not required to be removed separately in case of printing by using the transparent printing inks, for example the orange color in the design, which considered a sub-color, could be separated through the yellow and red separation positions in the red and yellow films, without dedicating a film for orange color, then applying the same rules on minor colors such as green and purple, and also the brown color, or the colors that could be obtained by removing the basic colors such as red, yellow and blue. Subsequently, if we wanted to remove a design of 8 colors; red, yellow, blue, purple, green, orange, brown and black, we have only to remove four colors which are red, yellow, blue and black.

Thus, if we wanted to create 8 colors, we would prepare only 4 printing blocks, from which other colors could be produced for colorable prints, on condition of using the transparent printing pastes, not the opaque, to create the layers of transparent inks, then producing the remaining colors. In the field of printmaking, this method is known as "CMYK" the means the printing pigments of; cyan, magenta, yellow and black.

It is noteworthy that the previously mentioned method of separating the colors is the most famous and economic because it saves money and faster in execution to get larger array of colors, on using the transparent printing inks only. The opaque printing inks are not suitable for this method, as each color

must be separated with its particular printing block. The most known opaque inks are the opaque foam inks with their relief effects and special beautiful look that were used by the researcher throughout his work, according what will be explained later. The opaque inks could be obtained, as well, by mixing with the white titanium. (Fig. 5)



Fig. 5: Panoramic image for executing the 4rd stage (Separating colors, or the color subtraction to the colored designs)

2.5 The 5th stage (The bichromate painting for colored films and producing the multi printmaking blocks)

According the explained above, the light exposure is being processed after drying the previously mentioned films, which were processed by using the Doku pens, then to be painted via exposure to UV rays over the light tables on silkscreen plates by using a silkscreen sensor and photo emulsions. (Fig. 6)

Tools and preparations:

The previously prepared film after separating the colors during the previous stage – preparing the silkscreen plates, silk no. 62 – Photo emulsions – A tool to stretch the gelatine on silk – light table – hot air-drying ovens.

Procedures:

The photo emulsions are being spread upon the silkscreen plate, then to be put inside the screen drying cabinets for about 15 minutes until drought. Then the film light exposure upon the prepared light table for 5 minutes. Then, taking the plates to the screen-printing washout tank with backlight to demonstrate the plates through flowing water in order to get the final printmaking plate, which will be dried again inside the drying cabinets before printing them.



Fig. 6: Panoramic image for the 5th stage (The bichromate painting for colored films and producing the multi printmaking blocks)

2.6 The 6th stage (Assembling colors, or the final-colored printmaking)

The silkscreen plates, which were prepared during the previous stages, could be printed by using water-color pastes, and also some designs that were printed by the plastisol fatty inks or foam printmaking pastes as both are able to be dried by heat as each plate is printed in its specific color. Then, accomplishing the printing process on high density cotton paper or loom textile to endure the density of water inks, the fatty plastisol inks or the foam paste.

Tools and supplies:

Silkscreen plates, which were prepared during the previous stage – Thick cotton paper – Textile, which is used in boat sail – Silkscreen water ink – Fatty plastisol colored ink – Clear base transparent media – natural and safe DOP oil, to be added to the plastisol ink – Squeegee – Heat gun.

Procedures

The printing procedures are simple and direct beginning with using the colored pastes, which were prepared and mixed with special medium. The colors are being selected for each printing plate according to the proposed plan, then adding the selected colored pigments to the printing pastes, in case of fatty pastes the added pigments will be fatty as well and water pigments to water pastes. Then, the printing process is going in sequence, a layer over the other until finishing the color assembly process while considering the color-matching. Taking into account drying the ink after printing each color separately before printing the successive color. (Fig. 7)



3. THE ARTISTIC APPLIED EXPERIMENTS AND THE ARTISTIC WORKS OF THE APPLIED STUDY:

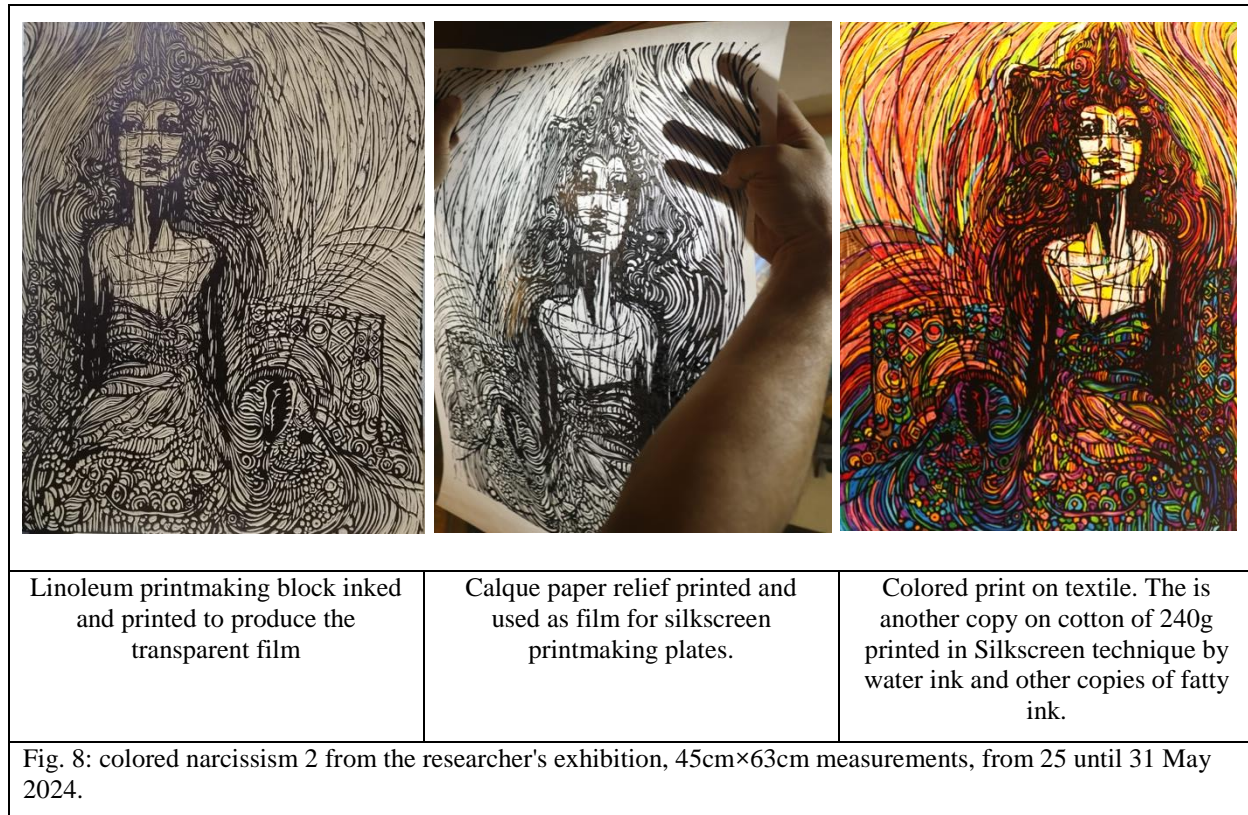
The researcher accomplished some works and organized a private exhibition from 25/5/2024 until 31/5/2024 that displayed 29 approved works through this artistic experiment, based on the previously mentioned view, in addition to other creative performances as follow:

. (1) work 60×80 cm, including the outer frame.	. (5) works 45×63 cm, including the outer frame.
(1) work 70×80 cm, including the outer frame.	(3) works 50×50, including the outer frame
(3) works 50×80 cm, including the outer frame	(15) works 21×21 cm, including the outer frame in a panoramic space.
(1) interactive sculpture work contains a relief printed and porous garment on transparent paper, from the designs of new exhibition, which were repeated visually to achieve the technical optical illusion and executed from light lamps, glass pieces, mirrors and reflective glass. The work measure 65cm length×65cm width×30cm thickness.	

3.1 1st applied work (colored narcissism 2)

The technical side: This work includes a creative technical experiment beginning with preparing the relief blocks, printing thin films in black on transparent calque paper, then producing the colored prints by using the flowmaster pens, what allowed to isolate these colors in order to begin the next stage of preparing the silkscreen plates and to be printed with colors. Hence, an experimented was presented to transform a black and white print into colored by using hybrid techniques that mixed between the visual properties and characteristics of the relief printmaking with the dynamic visual energy of the movements of lines that produced from engraving and cutting the linoleum blocks, and from the spontaneous colored layers of the silkscreen printing. The researcher used for printing this work 5 silkscreen plates. (Fig. 8)

The philosophy and expression of work: The researcher designed and executed a work of art for a woman wearing a dress, in an expressional way, which carry a set of colored ornaments consisting of dynamic lines to convoy the dramatic sense and a philosophy related to the look of a narcissist condescending woman and the surrounding state of clamor. In addition, the researcher employed the technique in showing the expression as he inserted the colors that imitate strokes of real brush, in addition to the transparent colored layers which were printed over each other to control the formation of the art work to produce particular colorable effects, while controlling the density of color itself by printing via transparent or opaque media. Here, the researcher attempted to present the work as if it was painting.



3.2 The 2nd applied work (brilliant and decorated)

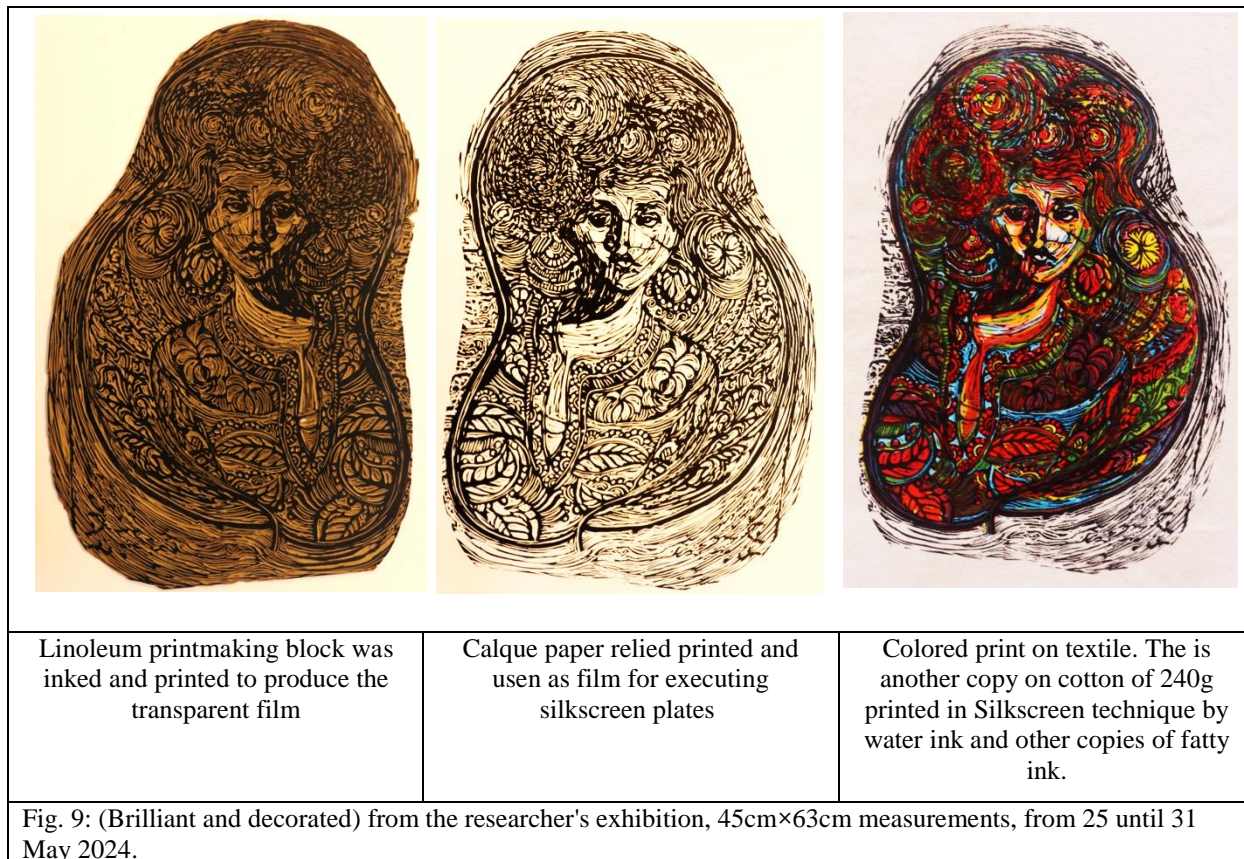
The technical side: The same procedure of previous experiment. It is noteworthy here that all used equipment were designed and made by the researcher for more control to the properties of experiment, such as the hydraulic printmaking presses, UV exposure devices, light tables, silkscreen plates, silkscreen sensor and photo emulsions.

The researcher printed the work over a surface of cotton paper and high-density fabric, which as used in boat sails. The researcher made also the printing water paste out of raw artificial material, while avoided the usage of preservatives and hardeners due to the required properties of artistic experiment. Besides, the researcher made the fatty printing pastes out of plastisol, which could be dried by heat, in addition to use the raw materials such as plastisol. The researcher used five silkscreen plates. (Fig. 9)

(Plastisol compounds could be made out of the easily accessible PVC plastic powders. If the artist lacks suitable crushing and blending machines or became afraid of damaging the mixer machine, it would be better to by the emulsions directly, but after checking their density especially the locally produced ones), because the local products could not be adjusted easily adjusted that could be very liquid or very hard. So that, the artist should be supplied by enough powder and oils. In case of being afraid from being failed, it is advised to by artificial products made in Italy or Spain, especially they are safe healthy.

The philosophy and expression of work: The researcher was inspired by an image to a woman wearing a decorated dress with foliage ornaments, in an expressional way, and carry a set of colored ornaments organized in a circular way, in contrary to the previous work, to generate an inner visual energy from the work and to convoy the proper expressional sense of the expressional state for a woman likes the happiness and activity and tends to joy and life, the theme that could be shown in the background, the

poetry processing and the painting surrounding environment. As well, the artist employed the technique in demonstrating the expressional aspect as he used the colors that emphasized the expressional and impressionistic state. In addition to the layers of transparent colors, which were printed over each other to control the formation of artistic work, produce distinctive color effects, and to control the density of color itself ion printing transparent and opaque, media. Therefore, the researcher tried to present his printmaking work in form of a painting work.



3.3 The 3rd applied work (Colored fragility)

The technical side: It is noteworthy that the artist's visual stimulator for this work was the woman due to the presence of a considerable formative space that inspires with the decorations and colors of a woman dress, which can fit different personalities and proper perfectly to achieve the desired technical experiment of the researcher and a rich source for the suitable colorable visual environment to isolate between colors and transforming the relief black unicolor prints into multi-colored silkscreen prints. This experiment followed the same procedures of the previous one except for the color processing techniques as the researcher printed the colored layers, then thin colored filters from different printing blocks to add the pastel sense, or the so called as "The chalky manner", what added to the work a soft pastel impression to facilitate the usage of the plastisol printmaking paste, which made by the researcher in a printing method to imitate the oil painting. The researcher used for this work seven silkscreen plates, silk no. 62, and the printed copies varied between fatty and water inks. (Fig. 10).

The philosophy and expression of the work: The researcher inspired here by a woman wearing a decorated dress of comfortable features and stable traits, while the decorations were made in an

expressional way. The design here differs from the previous works in light of conveying a comfortable and fragile state, not fierce and rebelled. The researcher intended to present this philosophical sense by using the techniques and colors properly for an expressional state of a calm and fragile woman, which could be emphasized through the background that processes the poetry and surrounding painted environment, in addition to the transparent colored layers, which printed over each other, to control the formation of artistic work to produce distinctive color effects, while controlling the density of color itself upon transparent and opaque colored media, especially the last transparent layers that were accumulated to produce the brown and rose colors, where the researcher added the titanium oxides to add a blurry touch, to present the work as if it is a painting.

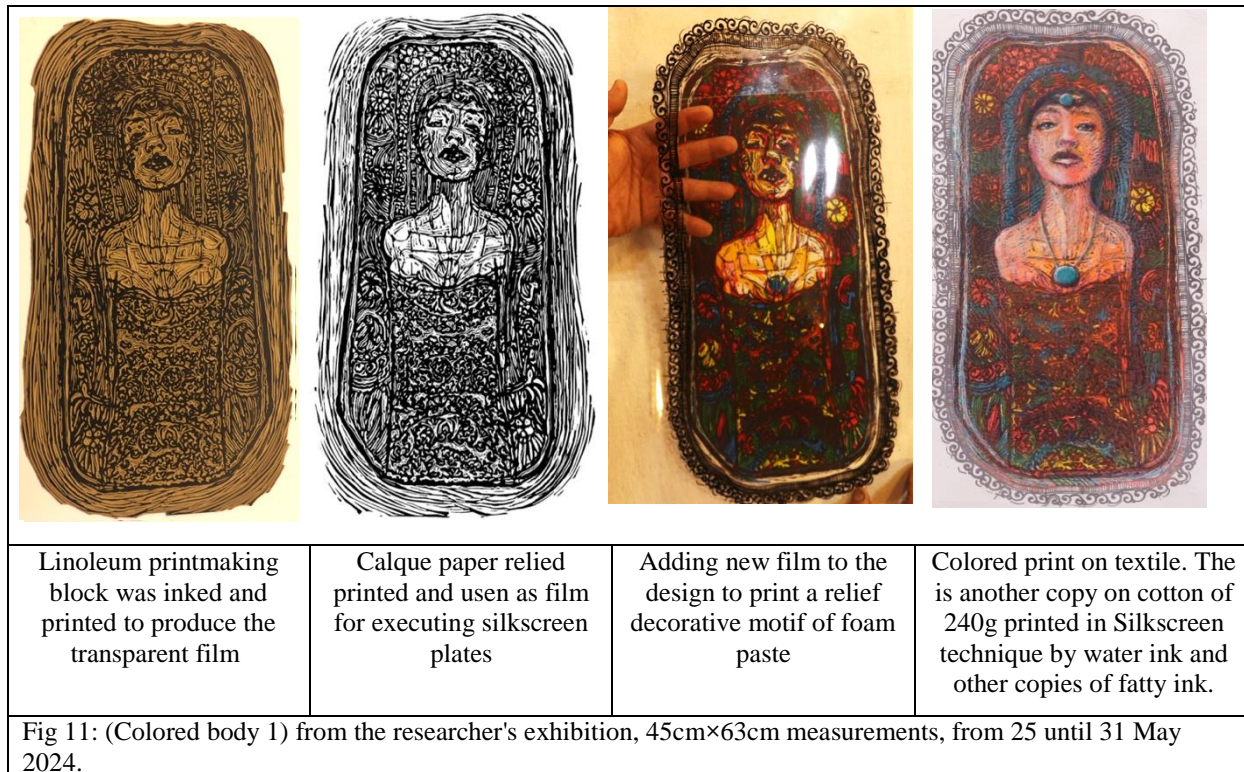


3.4 The fourth applied work (Colored body 1)

The technical side: The researcher followed the same procedures of previous works except for the color technical processing, as the researcher printed colored layers and then thin colored filters from other blocks to ass the pastel sense, which is known as the chalky style. The researcher added also the inks of salient foam as outer decorative unit the surrounds the work from the outside. This outer frame required a private film that was then printed on the colored prints. This demanded from the researcher to perform many experiments in order to test its suitability to the work. SO that the researcher made the printmaking pastes out of plastisol. The researcher used for this experiment seven silkscreen plates, silk no. 62, and the printed copies varied between the water and fatty inks. (Fig. 11)

The philosophy and expression of the work: The researcher was inspired by a woman wears a decorated dress, so that it was called as "The colored body" as an abbreviation to the term of "Somatic narcissism" that means philosophically a woman's deep desire to wear elaborated and colored dresses of condescending features. The researcher sought to this kind of visual stimulators to achieve a design full of decorations and colors to match the research experiment. The design had different properties that the previous ones to convoy a rebelled and condescending expressional state for the depicted personality.

The researcher transferred deliberately this feeling through the used techniques and colors in a suitable way to the expressional state, what could be shown in the background of the formative work that is full of decorations and color hues, in addition to the printed transparent layers, over each other, to form a work of art that contains many fatty and water prints, in addition to the foam pastes.



3.5 The 5th applied work (Narcissism Grandiose)

The technical side: Technically, the researcher used the same previous process, with the exception of the color processing, as the researcher added 2 blue colors, one light and another dark blue color, resulting in a variety of purple grades. The researcher added also 2 red colors, light and dark, to produce the hues of orange, purple and brown colors. Additionally, the researcher added the light color grades of fatty plastisol from other various printing blocks at different positions to imitate the oil painting, beside its resemblance to the soft pastel state, which is known as the chalky style. As well, the researcher added the salient foam inks in form of surrounding outer decorative unit, what demanded an extra film that was printed on the colored prints. The researcher used here seven silkscreen plates, silk no. 62, and the printed copied varied between fatty and water inks. (Fig. 12).

The philosophy and expression of the work: The researcher was inspired by an image for a woman wearing a decorated dress and was called as the "The colored narcissism grandiose" that describes, psychologically, the woman who interests in dressing various type of jewelries in order to attract the attention and show her greatness, in addition to the elaborate decorated dresses. As explained above, the researcher sought, via this kind of visual stimulators, to achieve a design full of decorations and colors that match the research experiment. This design is different from the previous ones in view of the used

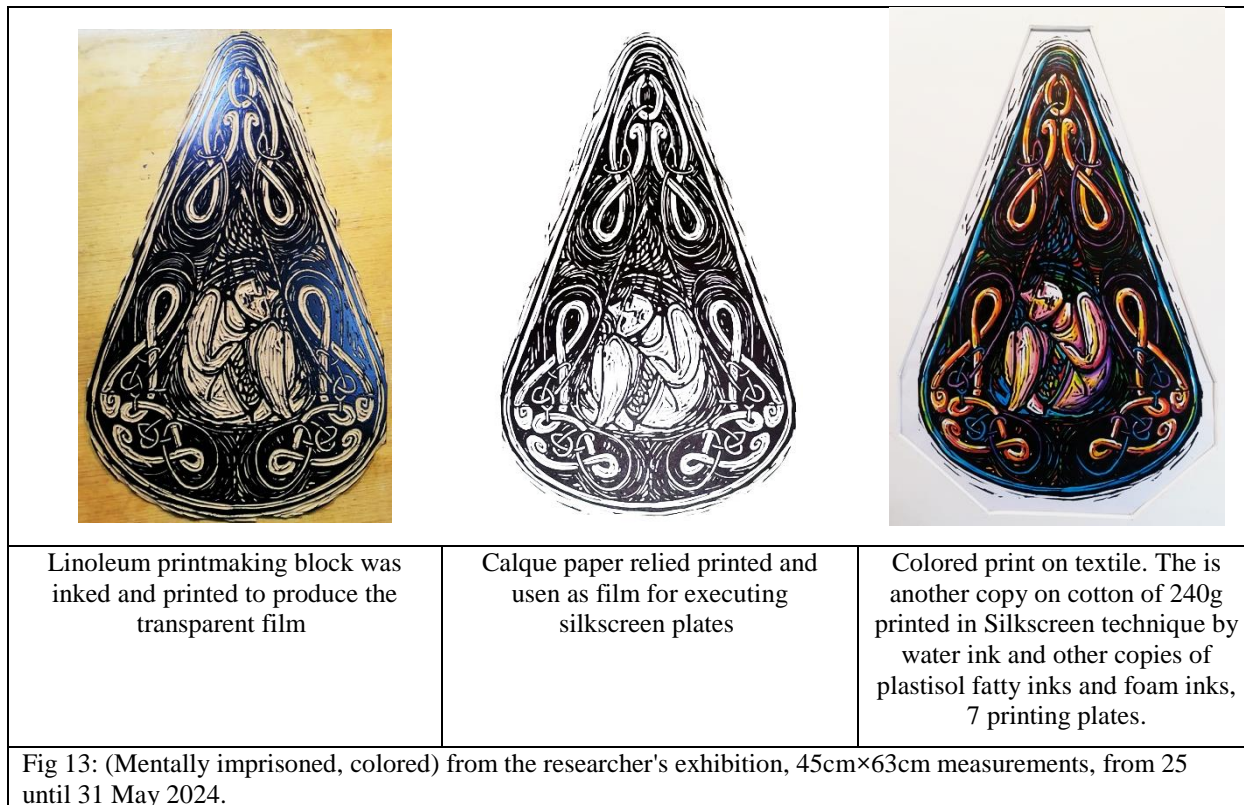
techniques and colors that were suitable for the expressional state, what could be clarified through the background of the work that was processed by many ornaments and color hues, in addition to the transparent colorable layers, printed over each other, to control the formation of the artistic work that included the water and fatty printed copies, in addition to the foam paste.



3.6 The 6th applied work (Mentally imprisoned, colored)

The technical side: The researcher used same previous techniques, but for the color techniques, as the researcher used the method of subtractive color model that known as (CMYK), through subtracting the colored spaces and lines on just four colored blocks, through which the multi colored prints could be produced on films. Hence, we use transparent printing pastes, not opaque, to produce the transparent ink layers that produce the rest of colors. This method is known in the field of printmaking as (CMYK) after the first letters of pigments of; Cyan, Magenta, Yellow and black. Thus, we can get the hues of purple, green, orange and brown colors. (Fig. 13).




The philosophy and expression of the work: The researcher inspired the theme of work from the psychological state of introversion for a woman who became imprisoned inside her psychological state and wears dresses of simple decorating units while concealing the outside borders onto a withdrawal woman, so that it was called as "mentally imprisoned, colored". As previously explained, the research sought to this kind of visual stimulators to achieve a designed state full of decorations and colors that match the research experiment. However, this design is different from the previous ones as the researcher represented a withdrawal psychological state through untraditional visual space of conical form as a new vision of design in its outer frame. The researcher used to convey this philosophical feeling in a proper way to the expressional and dramatic state of the work, in addition to the transparent colored layers, which printed over each other to control the grades of minor colors.



3.7 The 7th, 8th and 9th applied work (A group of protected women) three printmaking works

The technical side: The researcher used same previous techniques, but for the color techniques, as the researcher used the method of subtractive color model that known as (CMYK), through subtracting the colored spaces and lines on just four colored blocks, through which the multi colored prints could be produced on films. Hence, we use transparent printing pastes, not opaque, to produce the transparent ink layers that produce the rest of colors. This method is known in the field of printmaking as (CMYK) after the first letters of pigments of; Cyan, Magenta, Yellow and black. Thus, we can get the hues of purple, green, orange and brown colors. (Figs. 14, 15, 16).




The philosophy and expression of the work: The researcher was inspired by an image for a protected woman inside a circular shape that looks like a rounded closed fortification that not allowed to be approached. The researcher repeated this theme in 3 convergent works philosophically, which were termed as "the protected women). This design has its own features that differ from the other designs to convoy an expressional state full of peace, comfort and security, the philosophical sense that presented by the researcher in a proper way, in light of the philosophy and drama of works. In addition to the transparent colored layers, which printed over each other to control the minor colors. The researcher added to the works of 15 and 16 an outer decorative unit, in form of a decorated halo, to deepen the philosophical notion of the work to present a protected woman in a circular shape to ass a state of silence and protection because women are known for their interest in decorations to fill her life with happiness, such as her home, clothes and curtains. The image of woman being protected underneath an umbrella has a distinctive joyful look and significance. The woman naturally should enjoy the full protection and must not be harassed.

		
<p>Fig. 14: Protected women 1, printed colored copy on textile in silkscreen technique by using water inks.</p>	<p>Fig. 15: Protected women 2, printed colored copy on cotton paper 240g in silkscreen technique by using water inks.</p>	<p>Fig. 16: Protected women 3, printed colored copy on cotton paper 240g in silkscreen technique by using water inks.</p>
<p>from the researcher's exhibition, 50cm×50cm measurements including the outer frame, from 25 until 31 May 2024.</p>		

3.8 The 10th applied work (The spell)

The technical side: The applied work np. 17, entitled as "The Spell", is regarded of great importance and was the base over which the researcher constituted his artistic experiments. So that, this work was instrumental for the researcher in performing various experiments. Indeed, it should begin firstly by executing a traditional artistic work, then using the same work through other artistic forms, and by several methods. This what was aimed by the researcher to emerge from the limited traditional technical state to more spacious experimental horizons. Consequently, the researcher printed this work on fabric and paper, like as the previous works, while followed the same coloring techniques of subtractive color model that known as (CMYK) Cyan, Magenta, Yellow and black. Then, producing the hues of purple, green, orange and brown colors (Fig. 17). The researcher used a linoleum block to print a calque film (fig. 18), then printed many printed copies, which were repeated in form of texture, to be used later for works of Assemblage Art. As well, the researcher processed the colored printmaking on transparent paper to be used for works of Interactive Art (Fig. 19).




The philosophy and expression of the work: The researcher was inspired by an image for work entitled as "The Spell" that derived from compacted signs and ornaments for a human eye surrounded by halos of dynamic ornaments and visual patterns, what added to the work unreadable objects, look like talismans, so that it was named as "The Spell", to accommodate the thoughts of some spectators who believe in spiritual thoughts and spells. Many people are related to myths and seeking for the future and the unknown through these signs and paintings to type the talismans and incantations. Thus, the researcher was inspired his work, but the researcher used this theme to select specific techniques and larger sizes of textile for executing more liberated and bolder work.

		
<p>Fig. 17: Printed work entitled "The spell" in silkscreen technique by using the plastisol inks.</p>	<p>Fig. 18: A photo for the used printing film</p>	<p>Fig. 19: Printed design with contiguous and repeated motives on textile and also on transparent paper to be used in executing other works</p>
<p>from the researcher's exhibition, 3 works of 70cm×70cm measurements including the outer frame, from 25 until 31 May 2024.</p>		

3.9 The 11th, 12th and 13th applied work (The fashion group), inspired from the previous work

The technical side: The applied works no. 20, 21, 22 were executed by using the printing blocks of the previous work, as the researcher used some parts of "The Spell" work to make the colorable dresses of the characters of three new works. These works present 3 girls wearing full of decorations and colors, which were derived from the previous work, and was entitled by the researcher as "The Fashion". The researcher used a final block to execute the work in form of a figure of a girl. While the last work of that group "fashion 3), was executed by using three different silkscreen plates to print stamps, barcode and numeric series in salient foam printing inks, which considered a complicated technique because all used inks require heat to be dried, while the salient foam demands more heat to puff up and became salient, but exposing the layered inks to heat may spoil the printing pastes, regarding their compacted layers, leading to finding brighter parts and divergence in color hue, according to the exposure to high temperatures. But the researcher took this into account during the printing process by finding standard results for the experiment. Thus, the researcher accomplished all these works to execute a multi-staged process to produce the work, beginning with designing the blocks, passing through the silkscreen plates and ending with executing new designs for girls, the characters of work, then adding other new block for the salient foam pastes in a long technical and multi-staged process that accomplished by the researcher to conclude the results of research (Figs. 20, 21, 22).

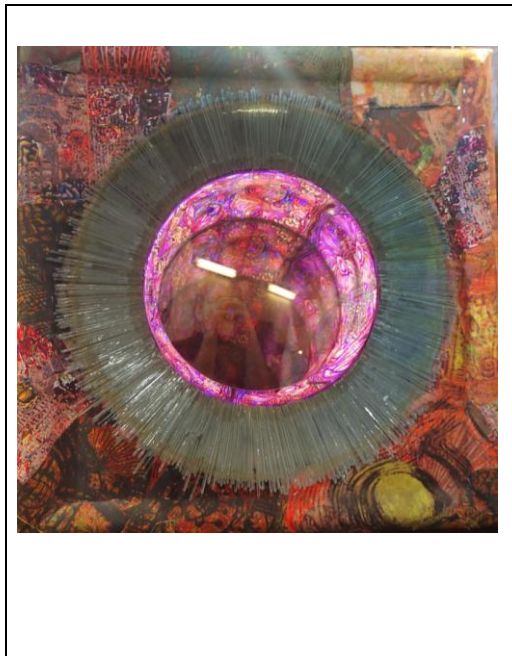
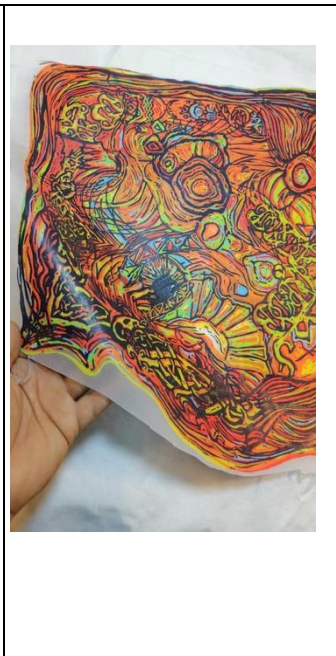

The philosophy and expression of the work: The researcher inspired from the previous work, which consists of compacted signs and ornaments for a human eye surrounded by halos of dynamic ornaments and visual patterns, an image for dresses of 3 girls to add a special state to the work of philosophical impressionist effects, especially that most of girls search for fashionable strange colored compositions for their dresses. This made my own design of the previous work proper to the drama and philosophy of this work, especially the features of unreadable talismans, which inspired the researcher. But the researcher used this theme to select specific techniques and larger sizes of textile for executing more liberated and bolder work.

		
<p>Fig. 20: The fashion 1, colored printed copy of cotton paper 240g, printed in silkscreen technique by using water inks.</p>	<p>Fig. 21: The fashion 2, colored printed copy of cotton paper 240g, printed in silkscreen technique by using water inks.</p>	<p>Fig. 22: The fashion 3, colored printed copy of cotton paper 240g, printed in silkscreen technique by using water inks.</p>
<p>from the researcher's exhibition, 3 works of 50cm×80cm measurements including the outer frame, from 25 until 31 May 2024.</p>		

3.10 The 14th applied work (Heart from inside), inspired from the 10th work:

The technical side: The applied work no. 23, under the title of (Herat from inside), is considered an interactive work as the researcher used colored and printed transparent films in silkscreen printmaking technique by using the same printing block of "The Spell" work (work no. 17). Here, the work was printed by using the clear base highly transparent plastisol inks to allow light to pass through, then he used them inside light exposure interactive tables, designed by the researcher (Fig. 25). Thus, the researcher made a light field for the exposure table by fixing a mirror opposite to reflective glass to pass the light through and repeat the image. The researcher fixed the mirror upon a moveable engine to move the mirror and achieve an interactive visual trick. While the outer part of the light table was made out of used and old pieces of prints. The researcher was careful to present many visions from the same design and to transform the traditional image into many technical and expressional forms.

The researcher was influenced by many artists and innovators who attempted to free the artistic work from the traditional teachings and constraints, so that let us review some philosophical and historical stimulator to understand how the artist transformed from the traditional printmaking into the flow of techniques and performances.

		
<p>Fig. 23: From the heart: Interactive artistic work and moveable to repeat the image and the design.</p>	<p>Fig. 24: Printed copy by the plastisol on chips of transparent calque.</p>	<p>Fig. 25: The interactive device from inside, made by the researcher.</p>
<p>from the researcher's exhibition, 3 works of 50cm×50cm measurements including the outer frame, from 25 until 31 May 2024.</p>		

A historic and philosophical introduction to the work:

It is notable that the artistic movements that called for change had a great impact on the artistic production, changing and updating the stagnant concepts. The Fluxus group, which influenced by the DADA movement, created new thoughts that refused all kinds of traditional models, that matter that reflexed in their name after the word "Flow" referring to the flow of changesets throughout the artists group. This group founded by some cooperated artists from Europe, USA and Japan influenced by the thoughts of Lithuanian artist George Macinaus (1931-1978), the founder of this group, who gathered around him specialists of many fields including engineers, artists, architects, designers, composers and actors. Hence, the limits between arts began in disappearing gradually. This movement aimed to be liberated from all forms of traditional cultural and artistic constraints as their refused all kinds of barriers between different arts, and between art and life, while they called to merge between them and the integration of different cultures.

Through many early attempts. The Assemblage Art emerged since early 1950s and developed at steady pace to gain more acceptance from the artists. This artistic movement marked the first beginnings to integrate between the formative art and other forms and molds to be basic for the hybrid arts in order to be freed from the traditional molds towards the comprehensively liberty in using materials and to be assembled and integrated formatively and visually. In addition, the artists were allowed to add some components characterized by movement, sound or light to add the character of interactivity to the work. Thus, the assemblage art is regarded the main portal to pass through all artistic methods and styles that organize the liberated visual and philosophical correlations between objects and arts in one integrated and compacted mold, and enabled to present the thoughts and achieving the artists' visions and expectations, Marilyn Stokstad,2006.

The hybridization was not confined only to integrating the objects or the different forms of art, but it involved also the philosophy of artist to achieve their vision, expectations and dreams by fulfilling the different visions of multiplying the techniques and integrating between the contents of artistic work. Thus, the objects whether were prepared deliberately for an artistic purpose, readymade or found by coincidence, could be mixed inside the same artistic work harmoniously through specific philosophical dimension, whether these objects were metal, wood, glass, textile, etc. Even the old or remains of prints could be assembled and involved inside a philosophy of an artistic work. Patrizia Bisci, Palombi, Roma, 1987

Many artists assembled the same printmaking blocks after being processed by the polyester, or to be compacted, then were displayed by using assemblage, interactive or compacted methods. Many artists were interested in assembling the printed object that subjected to the printed reproduction techniques, such as assembling the matchboxes, cigarette boxes, books or empty cartoon packaging boxes, as they assembled these objects in varied formations and form, such as the Italian artist Paolo Scripa (born in 1934), through his work of (Tabellone Consumistico), an Italian word means "the accumulation of consumption", as the artist assembled hundreds of cigarette boxes or used matches, the objects that belong to the "Object found" typology, which were assembled together by the artist, then he added to that composition the blue light fluorescent lamps and fixed into a wooden box, while the lights of lamps were of different degrees and of repeated beats and changeable power, to inspire with the deepness and movement by using light. The artist fixed also pieces of dual mirrors to inspire with the repetitiveness and recurrency of light units. Thus, the artist succeeded in integrating between the Kinetic art and the Assemblage art, then he surrounded the work by a huge iron chain and a large copper lock, as a sign to the handcuffs and shackles of smoking that imprisoned the human being. Paolo Scripa, 1996.



May be the previously mentioned models of thoughts and alternation showed the nature of assembled artistic work, which was always an independent approach, then the artistic works developed via the Art of Object to be involved in various artistic practices, sometimes with the Environmental art and others with the Kinetic art, and so on. The main goal was to provide a philosophical space through which an artist can mix and integrate between the contents of his artistic work, so that the art became of assemblage nature not confined to specific philosophy or an artistic trend. Hence, the researcher concentrates, through his discussions, on forming the philosophy of his works and the integration between different materials, as the final block belong to the field of Installation Art, formatively and contently, according to the process of integrating between these arts, what indicates that the Assemblage Art is not confined to rigid limits and criteria, but it can be fused in compacted artistic molds to be one of the most stimulators to the Interactive Art.

Interaction, movement and assembly of work: In light of the previously mentioned historic and analytical introduction, the researcher attempted technically to execute printed works inside new artistic formative molds as an experimental attempt to perform a hybrid work of art with special impression. Firstly, by integrating between the printmaking techniques themselves, then by mixing between the printed work of art and the techniques of interactive art by moving the work using an engine and employing the light. In addition, the researcher created a state of flow through energy and dynamism by introducing the Kinetic art inside more interrelated molds by combining between the printed copies together through the Assemblage Art, in addition to the Object Art that represented in assembling the remain of prints and the printed copies. The previously mentioned historic introduction clarifies the efforts of artist to explain the methodology of research, especially be achieving the philosophy of this work.

The researcher built up an upper electric control unit, in form of buttons, to enable movement at the four directions to add mobility to the parts of work and the character of artistic interactivity. This electric unit

enabled the movement of mirrors inside the main work, which were fixed at top of the wooden box in pyramidion form, as the researcher covered the wooden body of the box by designed printed in the silkscreen technique, which executed by the researcher, then were printed on transparent paper and textile by using the previous design. Coating the wooden body created transparent spots for the researcher to pass the light through them. In addition, the researcher added frills, by acrylic colors, in form of blue and turquoise beads to match the hot colors of the design. (Fig. 26).

The researcher is fond of experiencing materials, especially by hybridizing and mixing between the different fields of art, as the researcher has a long experience in mixing and integrating between materials and functioning them, especially through his scientific journey in Italy, where he participated with interactive and shared works through the artistic group of "Art Cube Italy 2010", in the field of interactive art that were practiced by making cubes in parks and plazas. Then, the researcher practiced the installation art through his doctorate thesis of "Graphic Technique in Installation Art, 2002", where he followed some procedures and practices to mix and integrate as he made transport paper of flexible films that could be printed upon then to be transported to relief sculptured surfaces to hybridize between different fields of art. The researcher used also such techniques for different artistic events, celebrations and interactive installed works, such as the national centenary celebration of excavating Tut-Ankh-Amun's tomb, unpublished work of art. The researcher would like to mention more philosophical benefits in using the previously mentioned technique and how to function it in more effective and deeper way by using different interactive and hybrid techniques, but it needs more specialized researches and more space.

		
<p>The used and printed designs on textile and also on transparent paper and used to cover the wooden body.</p>	<p>Profile view of the control box and the light inside it</p>	<p>Profile view of the control box and the light inside it</p>
<p>Fig. 26: A pyramidion box surmounted by a control unit to move the interactive work, made by the researcher across his experiment and did not display, covered by artistic prints for the same work no. 17 under the title of "The spell".</p>		

3.11 The 15th applied work (Panoramic impressions)

This work was executed by using many old and used blocks, beside readymade objects, which regarded of the most important problems of the study to make benefit from any used printing media, techniques or materials, or to find them across the found objects. Many artists ignore that the remains of worn prints have considerable value, and considered from the art of object, because of the strict teachings that prohibit and prevent these liberated experiment to use the remains of old prints, which could be useful by several way according to the previous illustrated work and the current work, as the researcher used a group of techniques such as the worn prints, the old printmaking blocks and also the silkscreen printmaking through the method of "the localized blocking", and also the photo bichromate. Hence, the researcher executed a panoramic work consisting of 15 smaller panoramic work each measures 21×21 cm including the outer frame. (Fig. 27)

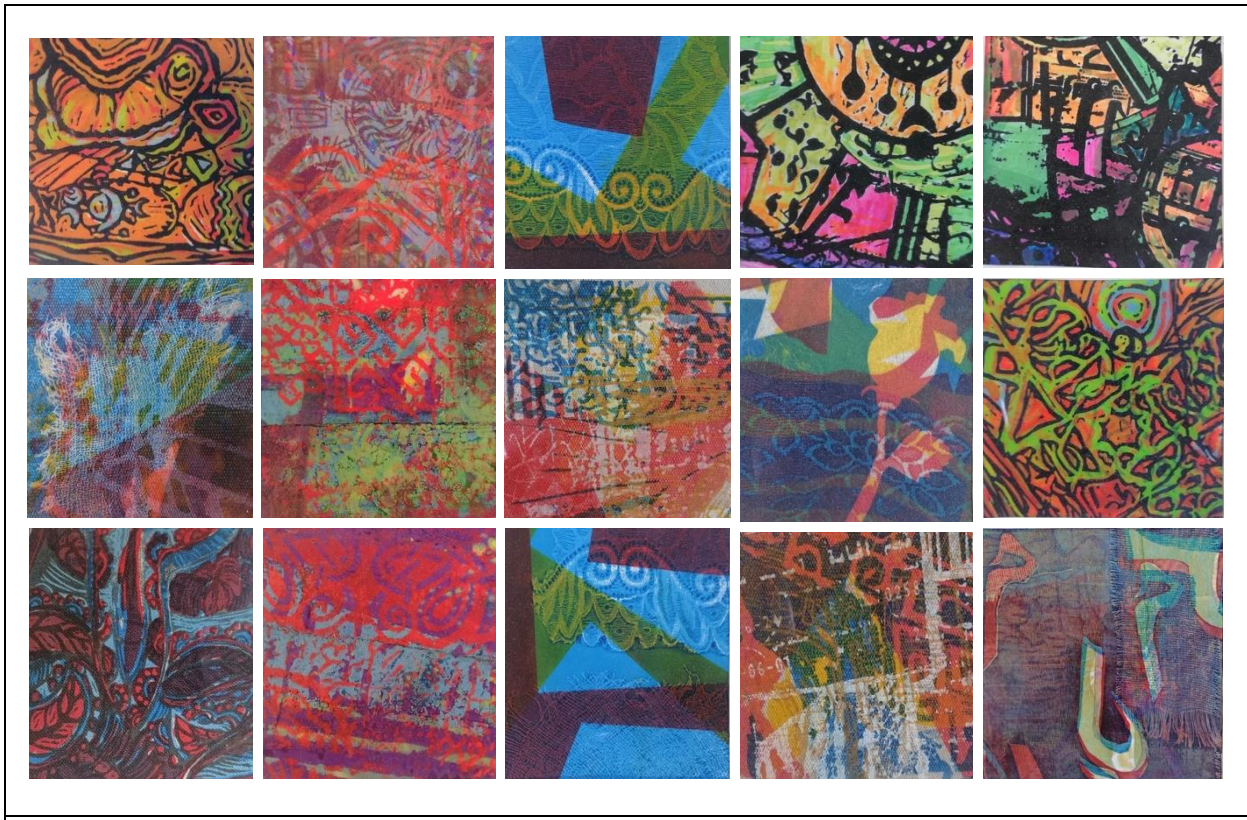


Fig. 27: Panoramic impressions, artistic panoramic work composes of 15 small prints. from the researcher's exhibition, 3 works of 50cm×50cm measurements including the outer frame, from 25 until 31 May 2024.

4- RESULTS:

1. The applied experiment indicated that many visual features, effects and interactions through integrating the techniques of relief printmaking with the silkscreen printmaking.
2. Printing thin films through relief printmaking, which are fit as films to prepare the silkscreen printmaking plates.
3. The artist can prepare equipment with special properties to facilitate the experimental and applied tasks, which can enable him with much more control to the characteristics of his artistic experiment.

4. The artist can prepare his own materials such as bichromate sensors of light exposure and also the printmaking pastes out of raw material, whether fatty or water, for more control to the experiment and to save a lot of money.
5. The printmaking work has its own aesthetics, whether in its traditional or the untraditional liberated form, and the printmaking and printed copies could be integrated inside the molds of liberal formative art such as the Kinetic, assemblage, interactive arts, in addition to installations and the art of object.
6. The printmaking works and artists should be freed from the rigid traditional approaches, while preserving at the same time the understandings of traditional academic approaches, their basics and studying them.

5- RECOMMENDATIONS:

1. The researcher recommends with establishing specialized institutions to link between art and technology, in addition to working on developing experts in the different fields of art, technical sciences and technology.
2. The research recommends with funding the liberal experiments to renew the stillness of artistic academic teachings, for the purpose of developing and updating the art of printmaking.
3. The researcher recommends with establishing institutions, labs and sub-centers inside the faculties of fine arts and employing them in following and funding the experiments of innovative artists.
4. The researcher recommends the artists to be interested about integrating and hybridizing the arts and their different branches in new and liberal formative molds.

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(الهجين) تجارب تقنية مبتكرة لدمج أفلام الوسائط الطباعية البارزة مع تقنيات التصوير البيكروماتي للطباعة الحريرية

شريف محمد حسني شكري²

المخلص

يتناول البحث حلولاً تقنية وتجريبية مبتكرة للطباعة الفنية وذلك بهدف الدمج بين تقنيات طباعة السيلك سكرين والطباعة البارزة للحصول على هجين تشكيلي مبتكر، حيث قام الباحث بطباعة أفلام شفافة رقيقة بالحبر الأسود الدهني مستعيناً بقوالب اللينوليوم البارزة، ثم قام باستخدامها كأفلام رقيقة وصالحة للتصوير البيكروماتي على قوالب الطباعة الشبكية والمعروفة بالطباعة الشبكية الحريرية، حيث قام الباحث بمحاولة فتح آفاق جديدة من خلال هذه التطبيقات والتمهيد لمساحة تجريبية مبتكرة وجديدة للفنانين من خلال مناقشة هذا البحث التطبيقي، والذي يركز فيه الباحث على تحويل التصميمات التي تم تنفيذها بالطباعة البارزة بلون واحد إلى طباعة متعددة الألوان ومطبوعة بتقنيات السيلك سكرين ولكن ما يميز تلك الطباعة الهجين أنها تحمل في طياتها وهيتها الحالة الجرافيكية المميزة للطباعة البارزة وما تمتاز به من قطع وحفر مضاف إليها حالة خاصة من الهجين الطباعي من طبقات اللون المطبوع بتقنيات السيلك سكرين، ويستعرض البحث تجارب تقنية مدمجة للأعمال المطبوعة مثل الأعمال Mixed media والتفاعلية InterActive Art والمركبة Installation Art والتجميعية Assemblage Art والهجينية الفنية Hybring Art، ولقد قام الباحث باستنباط تصميماته الملونة من أزياء الفتيات كمثير بصري بحيث تكون مناسبة لتقييم تجربته التقنية وتكون مناسبة لإختبار تراكبات الألوان الهجين التي تم إستحداثها من التقنية المستخدمة في التجربة

الكلمات الدالة : أفلام الطباعة البارزة؛ الهجين؛ السيلك سكرين

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