TEXTILE PRINTING / ART AND TECHNOLOGY

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Abstract: *The evolution of textile printing as an independent artistic technique was slow and unfolded in deferent stages all throughout the 20th century. From the introduction of the first stencils and artistic stamps that revolutionized the small printing workshops, to the creation of silkscreen designed for each color and model, it was a big step for the industry and art at the same time. Traditional workshop techniques such as batik or silk painting are still kept at a high artistic and technical level.*
An overview of contemporary textile printing concludes that the art of digital printing is gaining impressive momentum in the 21st century, with most artists preferring this new method of textile design that is faster and more easily adaptable to any material surface.

Key words: *ștampile**,** serigrafie, batik, imprimare digital,*

1. INTRODUCTION

Starting from the origin of the word, printing involves leaving an imprint (a trace) on a support by means of an object.[1] Textile printing has always been a cheap alternative for decorating simple materials compared to those with texture (damask brocade) or embroidered ones. Printed materials were cheaper, faster and easier to produce. The wealth of colors and the possibility of transposing the same design in different color ranges guaranteed the success of the textile print on the market.

A brief review of creative approaches in the field of textile arts shows a rapid evolution of techniques.

The first decorator, who highlighted the value of print design, raising it to the rank of art, is William Morris. At the end of the 19th century, the English artist, together with John Henry Dearle, coordinated a creative workshop and transferred prints for wallpaper, textiles and upholstery. The models created by him were very successful, being a source of inspiration for some contemporary artists.

Today, the Textile Arts that use printing as a basic technique have given up modular composition, in precise networks, which gives rise to uniform decorative fields, adopting the creative freedom offered by plastic composition. If at the beginning of the '50s, '60s, in the workshops, classic screen-printing techniques (templates [2], stamps, sieves and cylinders [3]) or batik printing were mainly used, today photo transfer or digital methods are the preferred techniques, both in industry and by freelance artists.

The techniques used in textile printing are diverse. Screen printing has remained in great demand in the last two centuries, both in industrial creations and in those of small artistic workshops. Even if it starts from a single module, the results obtained by repeating it are special. The stamping printing technique involves transferring the model onto the material by pressing a wooden or rubber stamp.

In the case of artistic screen printing, there are no two identical prints, this increases the originality of the work created. Screen printing that uses one or more transposition sites, depending on the complexity of the model, allows the creation of large compositions with great accuracy. However, the graphic stylization of the models is an imperative of the technique. One cannot speak of perfect realism regarding classic serigraphic compositions.

The discovery of new types of dyes and corroding or etching substances [4] allowed the creation of images that speculate three-dimensional effects, either by dissolving the textile fiber on which it is applied, or by expanding, giving depth or volume to the drawing. For example, brocade velvet [5], specific to weaving techniques in the past, is today made by screen printing, applying chemical substances to the uniform surface of the velvet, substances that corrode, eat the textile fiber, leaving the decorative model proposed by the artist on the surface. In the same way, the effects for materials that combine silk, tulle, lace, velvet or net are speculated. Contemporary artists experiment with print through its graphic effect, proposing to create not only a chromatic composition, but also one aimed at structuring and restructuring the textile support on which it is applied.

Another printing technique, revalued by contemporary Textile Art, is batik, a technique for reserving patterns with wax. The medium used for the reservation differs depending on the geographical area, traditionally it can be wax (Indonesia), pap (Europe), clay (Africa), today chemical substances are usually used [6]. The graphic composition is drawn with the reservation paste on the white material before applying the textile dye. Coloring can be done by immersing the material in a cold bath or by applying the substance locally, in the outline. The purpose of the reservation is to prevent the dye (usually liquid) from penetrating the material on which it has been applied. Through successive layers of reservation and application of colors, from the lightest to the darkest, the composition acquires complexity, contrast and expressiveness.

The wax reservation technique, specific to Indonesia, enjoyed European success in the 18th century. Due to the sensitivity and creative freedom it gives, it has been adapted to new technologies, classic wax has been replaced by paraffin and other chemical preservatives, and natural inks have been replaced by acrylic-based inks. This reduced the time of making the products, and thanks to the extended color ranges, the compositions became much more complex. The batik technique is also the technique of free painting on canvas. There are striking similarities between watercolor and silk painting. A work made in the batik technique is a watercolor in negative. The artist must constantly have in mind the overall vision of the composition.

Among the digital printing techniques available to contemporary artists, the most widespread are phototransfer and digital printing. Phototransfer printing requires special transfer paper, a printer connected to the computer and a hot press or an iron. Any digital image (photo, drawing or text), printed on mirror paper, is printed on the textile by hot pressing the sheet (under a special press or with an iron), until the film with the image is transferred. For large-scale works with perfect accuracy, digital plotter printing is used, fed directly with textile, silk or cotton material.

Artist Clare Lane [7] uses the processing of creating images from photography using the computer, so that they can then be printed on textile materials. In the *Urban Fabric* cycle of works, the English artist combines the effects of digital printing,

phototransfer and screen printing, to give the works more texture and relief. Due to the basic technique, the works could theoretically be multiplied, but Clare Lane wanted to punctuate the artistic character of each individual piece, intervening in a unique way on each product.

2. EXPERIMENTAL

At the level of artistic experiment, a quick passage through all the stages of making textile prints is carried out in the final year projects by the students from the "George Enescu" National University of Arts in Iași, majoring in Art Textile Design - Desihn Textil. Every project starts from the phase of quick sketches, drawings made by hand on paper. This stage is essential in the search for the idea, the essential forms.

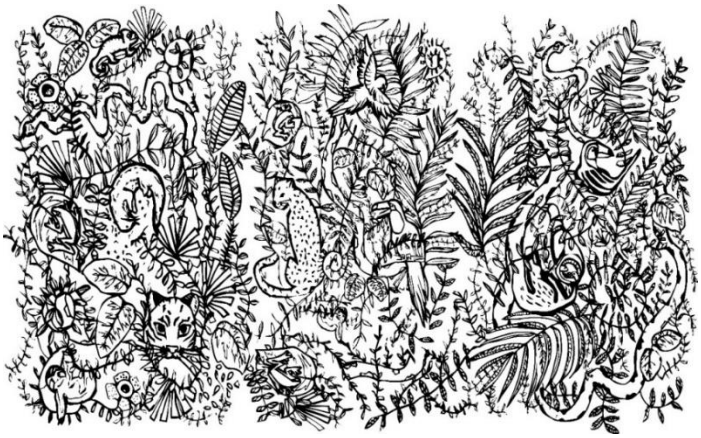

Figure 1*:* Drawing for screen printing using Corel Draw program - student Diana Virnă

For the creation of serigraphic sites, the drawings must take into account the size of the model to be transposed, its complexity, the number of colors applied and the type of dye used (paste or ink). Afterwards, the selected drawing is digitally processed, vectorized. The transfer of the design from the screen to the textile material opens multiple possibilities for experimental research of plastic sensitivity. Since natural plant based fibers are easily dyed and printed with a series of classic dyes (acrylic or primatex-based pigments) they are recommended to be the ideal support in textile printing at the artistic workshop level.

The first stage of work is the preparation of the textile material, by washing it in the washing machine, in order to remove the finish to be able to print easily, giving strength and quality to the print. After that, the material is very well tensioned, thus avoiding movement and shifting of the model, and the design on the silk screen can be transferred perfectly.

The screen is placed on the material and then the textile dye, which has the texture of a creamy paste, is placed inside. Then spread the paste with a squeegee over the entire surface of the sieve. The dye passes through the fine sieve transposing the print onto the material.

Figure 2: Manual printing on fabric with screen printing

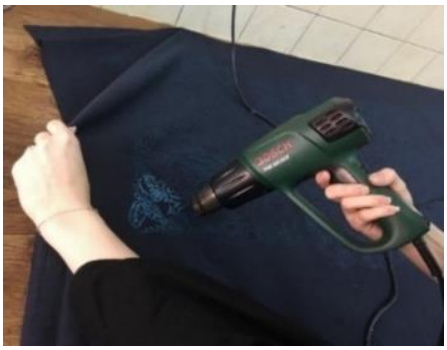

Figure 3: Stage of drying and activating the print

For a good fixation, let the material dry naturally for 24 hours. Afterwards, the print is thermally fixed by ironing with an iron at maximum temperature, with steam. In the case of the paste with a rubbery texture, the interventions are also stained with a hot air blower at a temperature of approximately 350℃, a process by which the inflatable printing paste swells up creating a relief texture of the print. This type of printing can also be applied to materials that are dark in color and have a fine texture. (serge cloth, damask). Avoid velvet or jersey-type textiles.

The base material can be dyed in the workshop using dyes specific to the batik technique. The material can be moistened very well after it has been spread on the work table. The material being wet, the applied batik colors merged easily creating spontaneous watercolor backgrounds. Over this background, after complete drying, you can intervene with the screen-printing screen in contrasting colors.

Figure 4: Dyeing the fabric using batik dyes

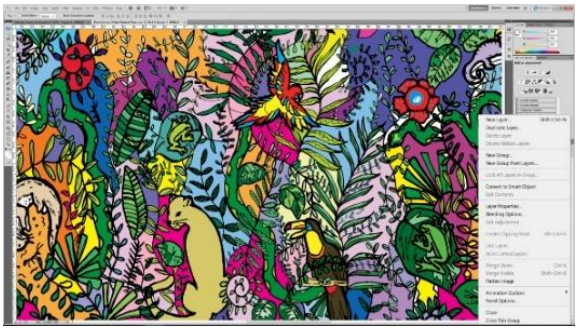

Figure 5: The Project for Digital Printing in Adobe Photoshop

Starting from the graphic scheme of the site made in the Corel Draw program, different colored digital prints can be created, very cheerfully using a very wide color spectrum. The resulting module was multiplied several times to obtain the coherent

footage. For more graphic accuracy, details can also be worked on in the Adobe Photoshop program.

3. RESULTS

The purpose of such laboratory experiments provides students with a better understanding of the scope of textile arts with direct application in print design for apparel textile products and beyond. By going through each stage from the drawing to the digital sketch, to the dyeing of the material and then to the screen printing, different stages can be observed in which the artistic personality of each can intervene spontaneously to modify, improve the aesthetic quality of the final artistic object.

In the end, the digital print is created which was later printed on a polyester plotter by a company specialized in this field (ALL CIO Invest S.R.L Iași). Digital printing is a much faster alternative to making a print on a textile providing accuracy and precision of transposition.

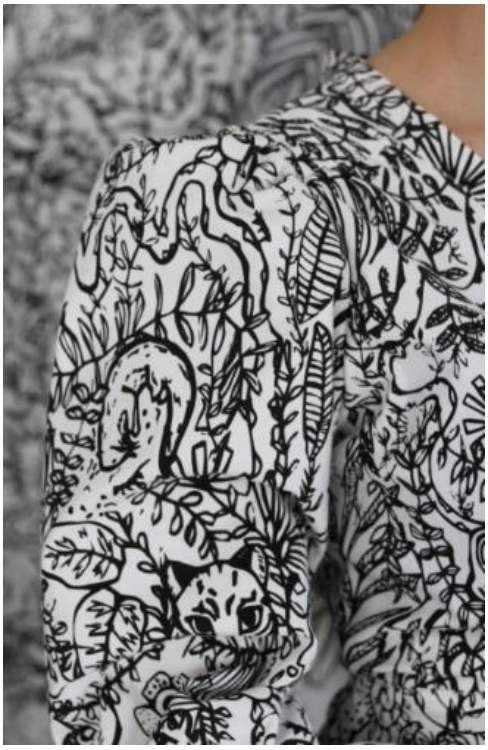

Figure 6: Screen printing on a white background

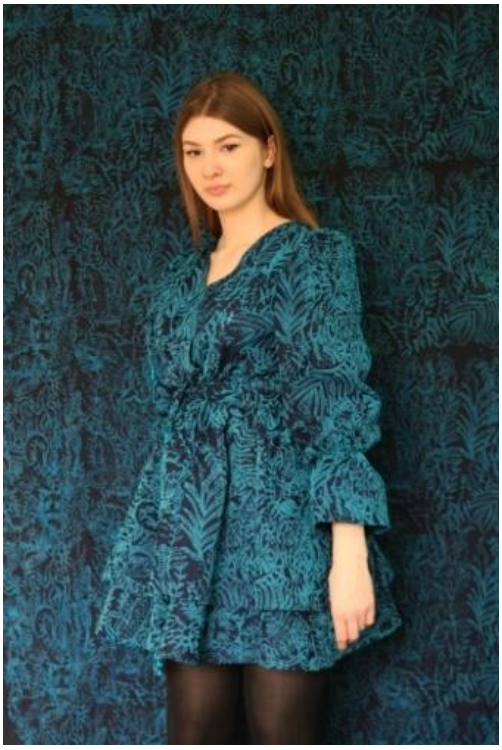

Figure 7: Silkscreen print on navy blue background, student Diana Virnă – CAMUFLAJ 2020 collection; coordinator Phd. Ecaterina Mărghidan

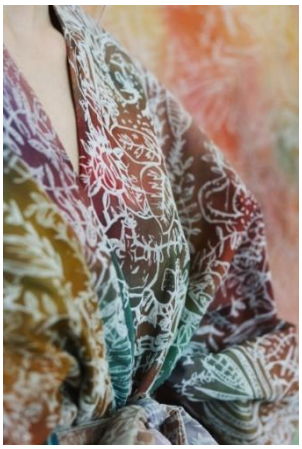

Figure 8: Screen print on batik background

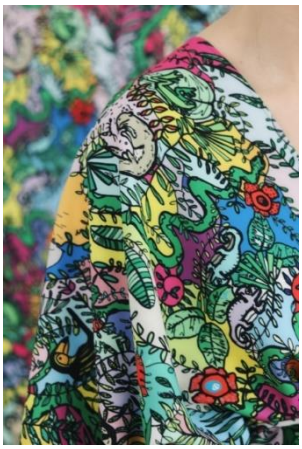

Figure 9: Digital print, student Diana Virnă – CAMUFLAJ collection 2020, coordinator Phd. Ecaterina Mărghidan

4. CONCLUSIONS

Depending on the imagination and the theme proposed by the artist, the possibilities of plastic expression through printing techniques are practically unlimited. Since in contemporary Textile Art there are no longer any restrictions regarding the combination of techniques, we find, more and more often in art galleries, works that successfully intertwine dyed, discolored, printed or embroidered materials. The alternation of contrasting technical elements in a single work (printing with stencils alongside phototransfer printing) is no longer a novelty.

5. References

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