

Chapter 23. Cyanotype: workshops for people with early dementia

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Abstract

The workshop “*Cyanotype: Workshops for people with early dementia*”, carried out at the 5th International Conference on Health Humanities introduced the cyanotype. The cyanotype is a 19th century photographic technique that the research project used as a way for preventing the decline of faculties of people living with diseases that provoke memory loss.

The activities carried out in the cyanotype workshop at the Conference were based on the creation of photographic images that could be intervened or complemented with other traditional art techniques. It was specially targeted at educators who want to develop an occupational therapy experience. This engaged the participants in activating their vision and developing their fine motor skills so as to create their own personal artwork. These aspects are important when applying this technique to groups living with dementia.

The general aim of the workshops at the Conference was to develop the cyanotype as a resource for art educators or facilitators in experiences with people living with Alzheimer’s disease or other early dementias.

Keywords: Alzheimer, workshop, cyanotype, communication.

Theoretical background

The experience is framed under the Arts & Health research line. This model allows associations, foundations and health services, social centres and research departments to work together. Under the auspices of this framework, the Grupo Interuniversitario de Investigación del Museo Pedagógico de Arte Infantil (GIMUPAI) develops this Project. The authors of this contribution include university professors and researchers of the Fine

Arts Faculty of the Complutense University of Madrid and the Department of Social Psychology and Anthropology of the Salamanca University.

Method / Description of the experience

CYANOTYPE. Theoretical description. Process and development of the photographic technique (Moreno 2003)

This photographic technique consists in obtaining prints, always in blue, from an acetate negative of the same size as the final image. However, obtaining a printed image is not the only way the technique can be applied. It can also be used to produce photograms and other unusual pictures, allowing patients to play an active role in the whole process.

Materials needed

- The appropriate emulsion
- Various everyday items for making photograms
- An acetate negative for obtaining prints
- A base (paper, craft paper, wood, stones, etc.)
- Brush for painting the emulsion onto the base
- Glass or perspex. A clip photograph frame can also be used.
- Trays for washing the pictures or a nearby supply of running water.

Scientific basis

The scientific basis of the cyanotype process is based on the sensitivity to light (photosensitivity) of some chemical products when they are mixed together. These products are ferric ammonium citrate (green) and potassium

ferricyanide (red). When exposed to ultraviolet light, some of the ferric ammonium citrate is reduced down to ferric salts and part of the potassium ferricyanide becomes ferric ferrocyanide, producing a Prussian blue print that is water insoluble and permanent.

The most important features of this photographic technique are the following:

- It has a low toxicity rate, lower than many products for everyday use.
- It is a technique in which patients can play a direct role throughout the entire process, from mixing the two components to get the final emulsion, to handling the image while it is being exposed to ultraviolet light.
- The emulsion is not a thick substance, which makes it very easy to apply.
- The emulsion can be used on a range of different media.
- The light source for obtaining the prints is ultraviolet, readily available as sunlight.
- There is no need for a darkroom for applying the emulsion to the base.
- The developing process is simple and relatively short and does not need a developer or fixer.
- It is easily combined with traditional processes like drawing, painting and so on.
- It provides permanent prints.

Chemical formula

Solution A

Ferric ammonium citrate 90 g

Distilled water to make up to 250 ml

Solution B

Potassium ferricyanide 50 g

Distilled water to make up to 250 ml

Store both solutions in black bottles until ready to use.

Mix equal parts of A and B in small quantities just before use.

Negatives

The acetate negatives are only needed if prints are to be obtained. In this case, they should be the same size as the image, because the print is obtained by direct contact between the negative and the base. If the final image is to be sharp, a clip photograph frame should be used, to keep the emulsion and the base in close contact with each other.

Bases

All kinds of materials are suitable, except metal. It is important to choose the correct base, depending on porosity, texture, and resistance to water.

The bases used for the workshops were craft paper and Canson paper. Given that the cyanotype is semi-transparent, when a coat of emulsion is applied to a coloured base, it interacts with the blue colour, resulting in a mixture. For example, if the emulsion is spread onto a yellow base, the result will be a green print; if the base is orange or red, the end result will be purple, and so on.

Tools for applying the emulsion

Using, rollers, sponges or brushes, we spread the print evenly onto the base.

Different sized brushes make the most of each one's qualities and enable a range of textures.

Applying the emulsion

This operation should be done in dim light. Printing can be done either completely or partially onto the base. The sensitised base, once dry, can be exposed to ultraviolet light. It can also be printed in advance and stored in a black folder to prevent the sun's rays acting on the emulsion.

Exposure (to sunlight)

The base is exposed directly to sunlight or another ultraviolet light source (a lamp). Everyday items can be replaced on it. These can be moved during exposure to achieve different compositions and depth effects.

Prints can also be made from negatives. The chosen base should be paper or another base with similar features. In this case, exposure is done by placing the base with the emulsion in contact with the negative. So as to keep the negative in place, we cover the negative with glass or perspex to keep the negative in place.

The third option is the combination of the two previous techniques (photogram-positive). Exposure to light can be done either by placing the negative first and making a photogram at the same time that the negative is being exposed to light.

Another way of working would be to obtain an image of a photogram or a positive print. Once the images are dry, the emulsion is applied again. In this manner the result is by placing a negative on it.

Exposure times

The length of time that the base should be exposed to ultraviolet light varies, depending on the light source. In the case of sunlight, it on the time of day and the season.

Other things to take into account are if the light has to pass through an intermediate element (glass, acetate, etc.) as well as the density and contrast of the negative. Below is a table with guidance on the approximate times needed to obtain an image with cyanotype from a negative:

Table 1. Approximate times to obtain an image with cyanotype

	Spring	Summer	Autumn	Winter
Sunny	10 minutes	5 minutes	12 minutes	18 minutes
Cloudy	15 minutes	7-8 minutes	20 minutes	30 minutes

In the case of photograms, these times are reduced by up to 20%.

In exposures using natural light, the times can easily be controlled, as the colour acquired by the emulsion will show the state of exposure at any time. At the time of application it will be yellow. It then gradually changes colour until taking on a greyish tone that determines whether the ferrous salts have been completely reduced by contact with the light. This indicator is very reliable to calculate when exposure has been completed.

Developing and fixing (washing)

Once exposure is complete the base is washed in trays or, preferably, in running water. The yellowish film over the parts of the image that were not exposed to light must be removed totally. Once this has been done, the image appears with its characteristic blue colour.

Drying

The next step after the washing process is drying, which can be done either in the open air or with a hair-dryer.

Manipulating the image

Once the print is dry it can be manipulated with paint, wax crayons, water colours, felt tip markers, and so on, as contact with these media will not cause any kind of chemical reaction.

Process of working with cyanotype

The process of working with this technique is described below:

1. If the aim is to produce a positive print, the first thing to do is to achieve a negative that is the same size as the final image, in acetate, as printing is done by contact.
2. The chosen base is coated either fully or partially with the photosensitive emulsion using a brush or any other suitable utensil. It is then left to dry, preferably in a dark place or in dim light.
3. Both the negative and the sensitised base are exposed by contact with ultraviolet light (natural or artificial). If photograms are being made, there is no need for a negative. Exposure depends on the intensity of the light source. Next, the base with the emulsion is washed under running water.
4. In the areas that were under the transparent parts of the negative, the emulsion will have undergone the corresponding chemical change and will have become insoluble. On the areas protected by the dense parts of the negative, the emulsion will have dissolved, resulting in the base being free of chemicals and showing the colour

of the base used. The result is the typical Prussian blue positive print.

5. The cyanotype, as mentioned earlier, is semi-transparent, so if different coloured bases are used, the final image obtained will be the mix of the blue of the cyanotype and the colour of the chosen base.
6. The final image can be manipulated using coloured crayons, felt tip marker pens, water colours, inks, charcoal, etc., as the cyanotype does not undergo any changes when it comes into contact with these materials.

Figures 1 and 2 show the development of the cyanotype workshop for the educators and facilitators' training:

WORK PROCESS IN THE CYANOTYPY WORKSHOP



Figure 1. The images are exposed to sunlight and washed



Figure 2. Some of the images obtained and chatting to participants

All images were taken by Ávila, N.

Results

Participants' reactions

Although the primary aim of the workshops was to teach and experiment with new methods and resources for working in general health contexts, and in particular with patients suffering from Alzheimer's disease and other early dementias, people who attended the workshops found the technique suitable for applying in a wide range of other situations because of the simplicity and speed of the process involved.

We would like to emphasise that everyone attending the workshops had nothing but positive reactions, showing curiosity, interest and the desire to learn a photographic process they knew nothing about. The benefits of implementing this technique with participants living with dementia are discussed in research projects carried out by the GIMUPAI research group (Ullán, 2011).

Once the workshop was over, most of the attendants wanted further explanations and a deeper knowledge of the technical side of the photographic production. Many participants expressed their desire to experiment with more complex exercises.

Discussion

Sphere of application of the activity

These activities designed for educators and facilitators working with people living with Alzheimer or other early onset dementias have already been put into practice with actual people in this situation. This previous experience supports its application with different groups that share these

characteristics. Four relevant aspects have to be taken into account for measuring success: creativity, learning, enjoyment and communication (Ullán, AM., et. al., 2013). The use of cyanotype translates into improvements in the self-esteem of the participants. For this reason, the implementation of cyanotype workshops is ideal for different contexts that want to carry out an occupational therapy activity.

Nevertheless, this technique is also apt for its application in other settings like schools, high-schools, universities, summer camps, etc.

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