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# Retouching and surroundings: tips and tricks for conservation students

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**Abstract:** Since the publication of the "Teoria del restauro" by Cesare Brandi in 1963, the question of retouching still raises theoretical debates among the stakeholders. Deliberately focusing on the practical context in which retouching is performed, and relying on personal experience as a professional restorer and professor, here are some useful tools to best accomplish this phase of intervention: the setting up of the work space, the choice of light, the care of clothing, the implementation of procedures for the protection of health and personal and environmental safety.

**Keywords:** Inpainting, environment, light, materials, health, habits, best practice

## Retouque y entorno: consejos y trucos para estudiantes de conservación

**Resumen:** Desde la publicación de "Teoría de la restauración" por Cesare Brandi en 1963, el tema de la reintegración cromática aún suscita debates teóricos entre las partes interesadas. Centrándose deliberadamente en el contexto práctico en el que tiene lugar la reintegración y transmitiendo la experiencia personal como profesional de conservación y restauración y profesora, aquí hay algunas herramientas útiles para llevar a cabo mejor esta fase de intervención: la creación del espacio de trabajo, la elección de la luz, cuidado de la ropa, implementación de procedimientos para la protección de la salud y seguridad personal y ambiental.

**Palabras clave:** pintura, medio ambiente, luz, materiales, salud, hábitos, mejores prácticas

## Reintegração e entorno: conselhos e truques para os estudantes de conservação

**Resumo:** Desde a publicação da "Teoria do restauro" por Cesare Brandi em 1963, a questão da reintegração cromática ainda suscita debates teóricos entre as partes interessadas. Focando deliberadamente no contexto prático em que a reintegração é realizada e retransmitindo a experiência pessoal como profissional de conservação e restauro e profesora, aqui estão algumas ferramentas úteis para melhor realizar essa fase de intervenção: a criação do espaço de trabalho, a escolha da luz, o cuidado com as roupas, a implementação de procedimentos para a proteção da saúde e segurança pessoal e ambiental.

**Palavras-chave:** pintura, meio ambiente, luz, materiais, saúde, hábitos, melhores práticas

### Introduction

The question of retouching in Italy dates back to at least the 16th century - with Giorgio Vasari - and goes through the following centuries with different theories on the reconstruction of losses. In 1963 the "Teoria del restauro" by Cesare Brandi was published, and in 1978-81 the proposals by Umberto Baldini [Figure 1], all based on the fundamental parameters of reversibility, recognisability and minimal intervention, now internationally shared.

The question of retouching still raises extensive discussions and debates among the experts. However, the theoretical aspects of the matter are not the subject of this paper. Rather the focus is on the practical context in which the retouching practice is performed.

The aim is to provide the students of conservation-restoration schools, who are approaching the study and practice of retouching, with some useful guiding tools that can help to achieve a successful intervention.



**Figure 1.-** Retouching in the Italian style of “selezione cromatica” from the painting “L’Annunciazione” by Giuseppe Valeriani and Scipione Pulzone (XVI century), Chiesa del Gesù in Rome. Photo courtesy Leonardo Severini ([www.leonardoseverini.it](http://www.leonardoseverini.it))

The illustrated proposals are the result of personal experience as a professional restorer and professor, as well as the fruitful exchange of ideas and best practices with colleagues and students from various parts of the world.

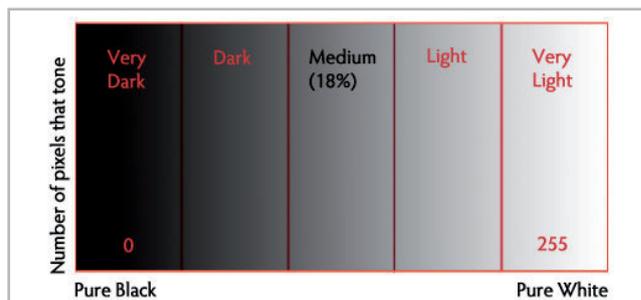
**Light and environment**

“Ubi ordo, ibi pax et decor. Ubi pax et decor, ibi laetitia”: it’s a Latin proverb that means that an ordered space allows you to work – physically and mentally – calm. Conservation practice, retouching in particular, is not an operation entrusted to the creativity and imagination of an artist, but a scientific one. For this you need a mental order that will be reflected in a clean and precise work.

Also the colors present in the environment are fundamental. Selecting suitable background tones is important to have full control of the light, and achieve a good result. It could be useful to paint the walls of the room in a uniform grey color, or, as an option, to use a backdrop. Curtains or panels can also be used for the purpose without an excessive cost or the cardboard backdrop for photo shoots.

But what grey to choose for the background? The best choice is “middle grey” [Figure 2] which purpose is to provide us a standard tone that is in between all highlights and all shadows. In photography, painting, and other visual arts, middle grey is a tone that is perceptually about halfway between black and white on a lightness scale; in photography, and printing, it is typically defined as 18% reflectance in visible light.

Most conservators don’t use enough light when they are working on inpainting. This is not good either for the work of art or for the conservator’s eyes. The lighting of the working environment must allow good visibility to carry out a specific activity, visual comfort, and safety. Workplaces must therefore be equipped with an sufficient amount of



**Figure 2.-** The best choice for suitable background and full control of the light in your workshop is “middle grey”, the tone typically defined as 18% reflectance in visible light

light for correct visibility in the environment. It is suggested to use an adequate distribution of lighting sources (natural and/or artificial) so to combine them.

Of course lighting quality has to make it possible to distinguish colors conveniently. Color is not a typical property of an object, but depends on the light that hits it. The good color rendering by an artificial source of light – Color Rendering Index – is a quantitative measure of the ability of a light source to reveal the colors of various objects faithfully in comparison with an ideal or natural light source [Figure 3]. The CRI is determined by the light source’s spectrum. CRI numerical value is excellent if it is 85-100, good if it is 70-85. Low-pressure sodium lighting has negative CRI; fluorescent lights range from about 50 for the basic types, up to about 98 for the best multi-phosphor type. Typical LEDs have a CRI of 80 or more. For a good CRI today you can use LED lights, purposely designed for conservation workshops.



**Figure 3.-** CRI – Color Rendering Index value from 85 to 100 is excellent for retouching. Prefer LED lights purposely designed.

To optimize the conditions of the environment where retouching is performed, it is important watch out for color reflections that will throw off color rendering; a window open on a green field can relax your mind, but doesn't interact positively with your work!

Remember also control the angle and the orientation of the light.

To remedy the difficulties caused by the presbyopia - a condition associated with aging of the eye that results in progressively worsening ability to focus clearly on close objects – it is useful to use adjustable lenses. The market offers different solutions: from the binocular magnifier to the adjustable clip-on magnifying lenses. Take care of your eyes, do not inpaint all day, take break, and in the night rest for an adequate number of hours.

## Health

When retouching, probably you are going to use also varnish colors and solvents to dilute. Nowadays conservators are aware about the problems of toxicity and hazards, and they choose high quality and low toxicity products. In any case it is important to work in a comfortable and safe environment, and this is possible using some simple devices: fume exhausters, solvent vapor filtering masks, and barrier materials (i.e. gloves, creams).

To avoid the use of expensive and noisy systems, you can make by yourself a site-specific device. Buy a wall extractor and a flexible hose: it will be an adaptative and inexpensive safety system [Figure 4]. Last but not least, it's also low noise. This system can sometimes reduce the use of safety masks, especially when their use is protracted over time.

Don't forget to protect your skin with barrier creams: remember that your skin also absorbs solvent vapors.

To avoid the dispersion of solvent vapors in your workplace, maintain your paints and working solutions inside simple



**Figure 4.-** Work in a comfortable and safe environment. A wall extractor with a flexible hose could be adaptative and not so expensive for your use.

lidded sealable boxes. This make them easily portable, keeping material and noxious vapours contained, and enable paints and solutions to last longer.

Very often I reproach my students who fold in half on their easel to reach the work area while retouching. Remember that a proper body positioning is useful for your body but also for the final quality of your work. If you are in good condition, your work will also benefit. So, sit upright with straight back and neck; never reach or work above the shoulder; raise or lower artwork to provide healthful access at a non-fatiguing, tangential (90°) angle. Maintain art work parallel and vertical: simple adjustable devices are at your disposal, like adjustable easel stands, and adjustable stools. If, on the contrary, you need to stand when retouching, please be careful to stand upright maintaining neutral verticality for a proper body positioning. When standing for prolonged periods, break the line of one leg by placing the foot up on a step.

Hand-rail is useful not only to maintain distance from art surfaces, but especially to support your hand and arm in a comfortable position.

## Inpainting materials

Any material you use in your studio, please always consult the safety data sheet of the products, or consult the scientific articles dedicated. You have also to keep in consideration the pigments stability to the light, and the refractive index of pigments and binders.

When I attended the conservation school, professor Laura Mora from the Istituto Centrale del Restauro in Rome was very famous because she used to retouch wearing a pair of long black suede gloves. This trick was helpful for not doing reflections on the surface she was working on. A pair of dark gloves is really useful to protect your hand and the work of art, but it's not necessary to be so elegant! Easy-to-do by yourself are coloured cotton gloves with cutted finger tips [Figure 5] or, less comfortable because not breathable, Nitrile gloves.

About colors and related tools, be sure to use only high quality products. Winsor & Newton watercolors, available in tube and godet format, are among the favourites. Maimeri Varnish colors, much used in the past, have been neglected by the market in recent years, due to the presence of the mastic varnish with yellowing problems; but recently they were subjected to an improvement of the binder. Gamblin Conservation Colors are used internationally: they are slightly polar and have better optical properties. They are made with Aldehyde resins, a more appropriate binder. Kremer Color chips in Paraloid are used especially in the countries of northern Europe and in the USA; they can be dissolved with all solvents used for the acrylic resins. In conclusion, a well organized set of colors will help you to easy retrieve and use them.



**Figure 5.-** Easy-to-do coloured cotton gloves, with cutted finger tips, helpful for not doing reflections on the surface you're working on. Not so elegant, but comfortable and unexpensive.

Remember that solvent mixtures shift and do not retain their proportions and working properties: so always prepare fresh inpainting diluent mixtures. Remember also to fill solvent jars completely as possible, keeping air space to a minimum.

Choose the best quality brushes. The most used are Sable, from 0-4 (generally). You may also use synthetic bristle brushes, of course not for varnish colors. Winsor & Newton Series 7 Pointed Round, and Series 7 Miniature Kolinsky sable watercolor brushes have unsurpassed quality, accuracy of point, and excellent spring. Please clean your brushes carefully, to preserve shape, flexibility and performance. Shampoo, rinse, shape, then tightly wrap brush in absorbent tissue. This is a simple and economic trick to wick away residues of media from the ferrule into the tissue.

### Good work habits

Inpainting is sedentary work: remember to move, and to breath! Some shoulder and neck mobility exercises can help improve your in-painting performance. Interrupting the work from time to time will allow a better overview when you start again [Figure 6]. A short walk in the nature will relax the eyes, restore the spirit and calm the mind.



**Figure 6.-** Retouching is a sedentary work: remember to move, stretch and breath to improve your in-painting performance.

### Conclusions

The pictorial integration of a work of art - both if you are a student and in the laboratory practice as a professional - requires a solid theoretical basis, associated with good manual ability, as well as a good sensitivity to colors. A practical enduring experience will certainly improve the quality of your work. Nonetheless, some simple basic devices and suggestions can help to optimize the environment, tools, and work habits.

This paper collects them in an easily accessible summary, and refers to the bibliographical references for any further information.

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Francesca Tonini is graduated in Restoration of Easel paintings and Wooden sculpture, and in Conservation of Cultural Heritage with a thesis on baroque wooden sculpture. She is a member of ICOM-cc and of the Working group Sculpture, Polychromy, and Architectural Decorations. She cooperated as Consulting Advisor at the Projecto Retablos - Conservation of Wooden Polychromed Altarpieces with the Getty Conservation Institute in Los Angeles and the Instituto Andaluz del Patrimonio Historico in Seville. She is also a component of the RECH Scientific Committee - Retouching of Cultural Heritage. She has taken part in various international conferences, seminars and workshops as a speaker. As an editor she has written many essays and articles on the study and restoration of wooden sculpture. In 2015 she published the handbook "La scultura lignea. Tecniche e restauro. Manuale per allievi restauratori". She is currently Adjunct Professor of Restoration at the School of Restoration in Urbino, Ca' Foscari University in Venice, Alma Mater Studiorum University in Bologna.



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