

Reflecting on fundamental issues of attributional method

(Taking Leonardo da Vinci and his school as a paradigm)

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Nowadays diagnostic technologies have allowed to expand the number of characteristic properties detectable in a painting, such as the techniques used and the *modus operandi* of an artist, narrowing the field to those issues that are more difficult to fake. In this view, the diagnostic analyses for the attribution and authentication provide information, as objective as possible, which, however, need a broader interpretation that integrate them in a historical context. In order to do so, it is also essential to keep an "ethos of transparence and verifiability [...] guaranteeing intersubjectivity of mutual communication"¹.

We should consider attributional studies as evolving as a construction/deconstruction process: experts should therefore be prepared to questioning their views, if new documents or material elements are discovered that raise doubts about their initial thesis². In addition, the inevitable, but known and therefore graspable, "confirmation bias"³ should be taken into account, which, acting either in positive or negative ways, directs the subject engaged in connoisseurship towards the exclusive primary research of compatible elements or, on the contrary, the exclusive consideration of factors that are not congruent.

As known, the current practice of attribution accepted both in the legal field and for commercial use is based on three key lines⁴: connoisseurship, or visual inspection by a knowing eye⁵, provenance studies and scientific investigations (Figure 1). The latter are currently used primarily as support for the expert's decision. According to this approach, the diagnostic investigations provide useful information to the attribution process in two different ways: through the identification of evidence that give accumulative results in favor of a hypothesis and others that do not create obstacles to the attribution⁶.

This use of scientific evidence in the attribution process is plagued by a number of disadvantages: not only these are often confused and merged with each other during the induction and judgment phase, so as to be misleading, but also, despite the continuing improvements and scientific developments, the results may be inconclusive. Moreover, even scientific techniques do not exclude a certain degree of subjectivity during the interpretation, nor the influence of "confirmation bias".

¹ For an in-depth explanation of these concepts refer to the essay of D. Seybold presented on the web site for AIA conference.

² The issue on the inventory of Caprotti's artworks is explanatory: the high value attributed to the first five paintings including those indicated above let assume that after the Master's death he had taken back to Milan some of the panels Leonardo brought in France. However, the accounting notes of the French royal administration were not yet known (disclosed eight years later in Jestaz, 1999, pp. 68-72), under which it is now possible to exclude this hypothesis. It seems in fact that Caprotti had already 'sold' Leonardo's original to Francis I in June of 1518.

³ Everything associated with wishful thinking. It is the privileging of research strategies with the aim or effect to produce a wanted outcome; but it is also the outcome itself. Since bias means simply tendency, it can be detected in the results of research as well as in the research process. The confirmation bias is also identified in the actions of private collectors, always convinced of owning an original painting or otherwise of significant value. Therefore it would be necessary to involve collectors since the beginning of the process through an educational strategy.

⁴ Spencer, 2004, p. 189 e 195. O'Connor, 2004, p. 6.

⁵ O'Connor, 2004, p. 6. Spencer, 2004, p. 201. Harter Bachmann, 2007, p. 19.

⁶ Kemp, 2014.

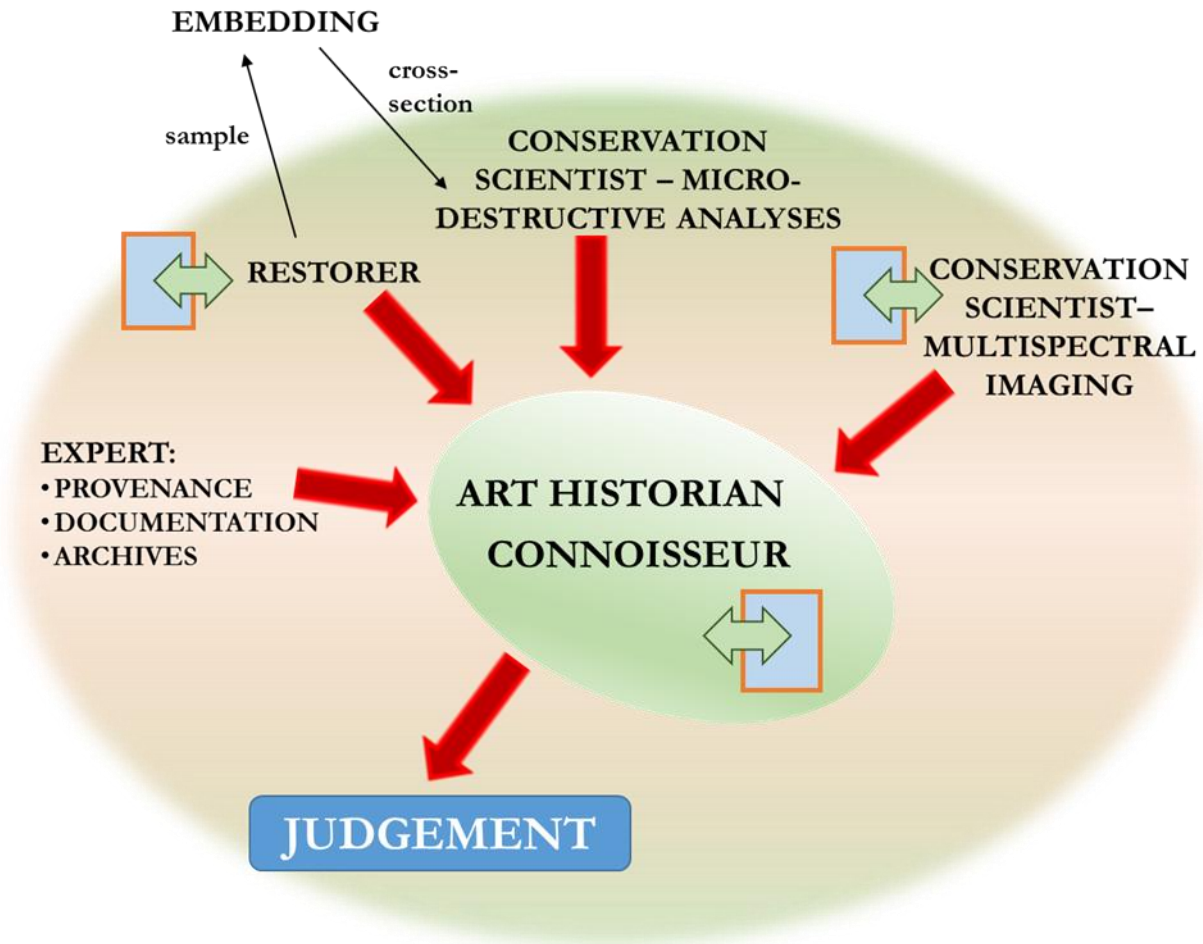
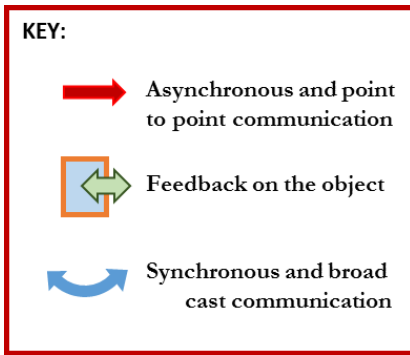


Figure 1

Method outlined as a teamwork approach

It is important therefore to identify methodological criteria that will open the way to a process that knows how to exploit the full potential of the technical analyses and reduce the problems associated with "confirmation bias" and subjectivity, criteria related to the phase of interpretation and also inherent in the scientific process. The Conservation Science Laboratory for Cultural Heritage of the University of Bologna (Department of Cultural Heritage) has been pursuing for some years the intent to identify and validate a methodological path that starts from these assumptions (Figure 2). The method starts from an approach based not on the hypothetical attribution but on the "anthropological" aspect of the artwork⁷, as already proposed by the Nara Document on Authenticity of 1994.

⁷ Pearce, 2003.

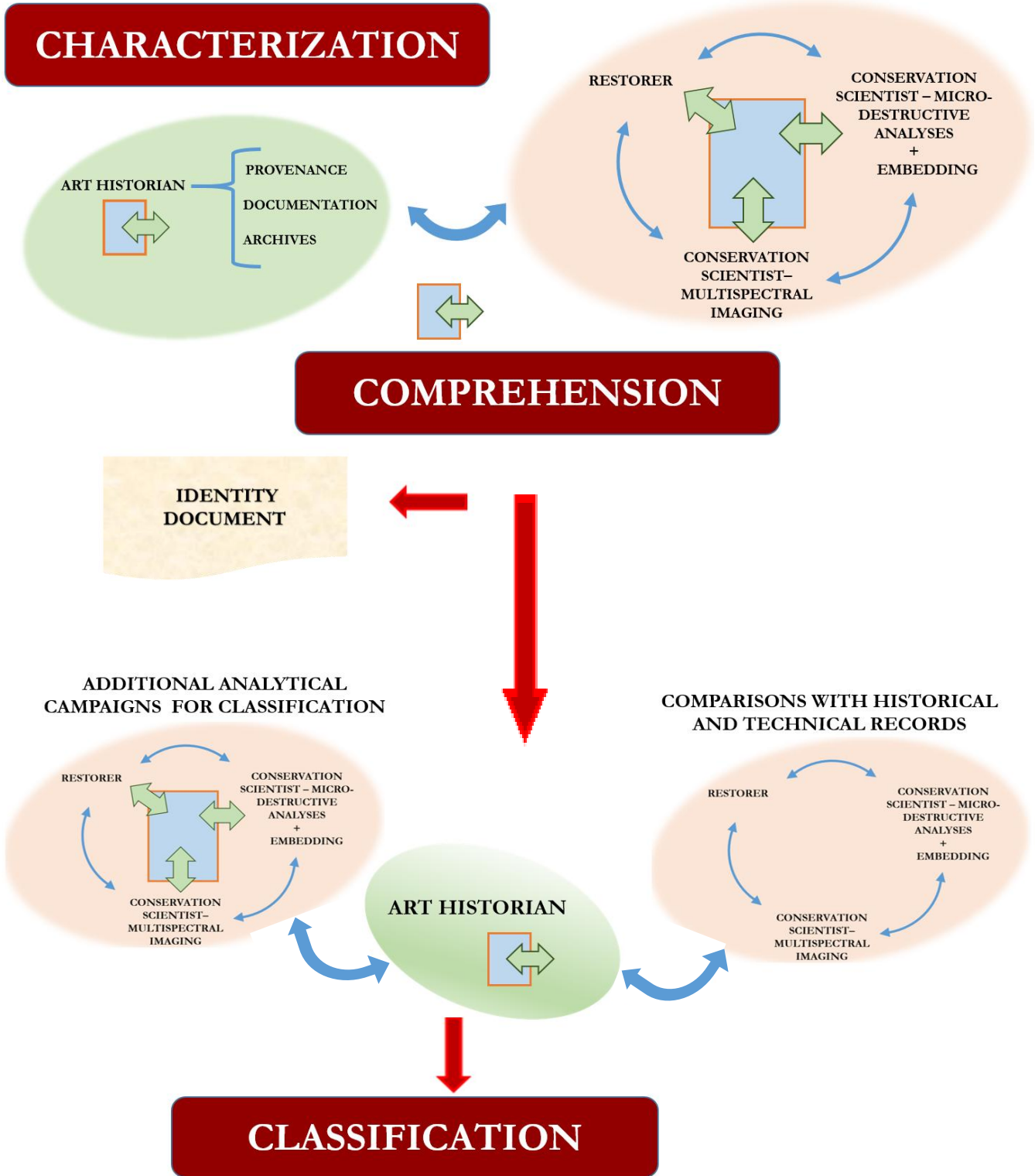


Figure 2

This Document is crucial on the conceptual level because, in addition to understanding the authenticity as an essential value, it suggests evaluating each type of available information on the object that may concern "form and design, materials and substance, use and function, traditions and techniques location and setting, and spirit and feeling". In order to do so, the Document emphasizes the importance of a multidisciplinary and dynamic approach and of a clear documentation as regards artwork. Multidisciplinary and comprehension of the artistic artifact, through the creation of a clear and as far as possible complete documentation of its components, represent the basic tools⁸.

Therefore, the methodology requires a series of gradual steps, which reconstruct the history of the artwork through a series of diagnostic, technical, artistic data etc. whose understanding and contextualization requires daily comparison, the close and continuous cooperation, as well as the coexistence within the same work context of the various proficiency involved in the attribution process: conservation scientists, art historians and restorers. These experts, possessing the knowledge and the necessary equipment, form a single operating team, within which a mutual exchange and a synchronous and broadcast communication are favored, considering the artistic product in every aspect. This allows to limit the subjectivity inherent the interpretation of data and the influence of "confirmation bias", by making sure that each step is discussed in the working group. It is necessary, therefore, the access to the object throughout the research process and a continuous and dynamic dialogue among the experts that have a direct and recurrent return on viewing the artifact.

The first methodological phase, otherwise called 'CHARACTERIZATION OF THE ARTIFACT', consists in the study of the work of art with the use of visual and analytical-instrumental analyses, which lead to obtaining data of optical and scientific nature.

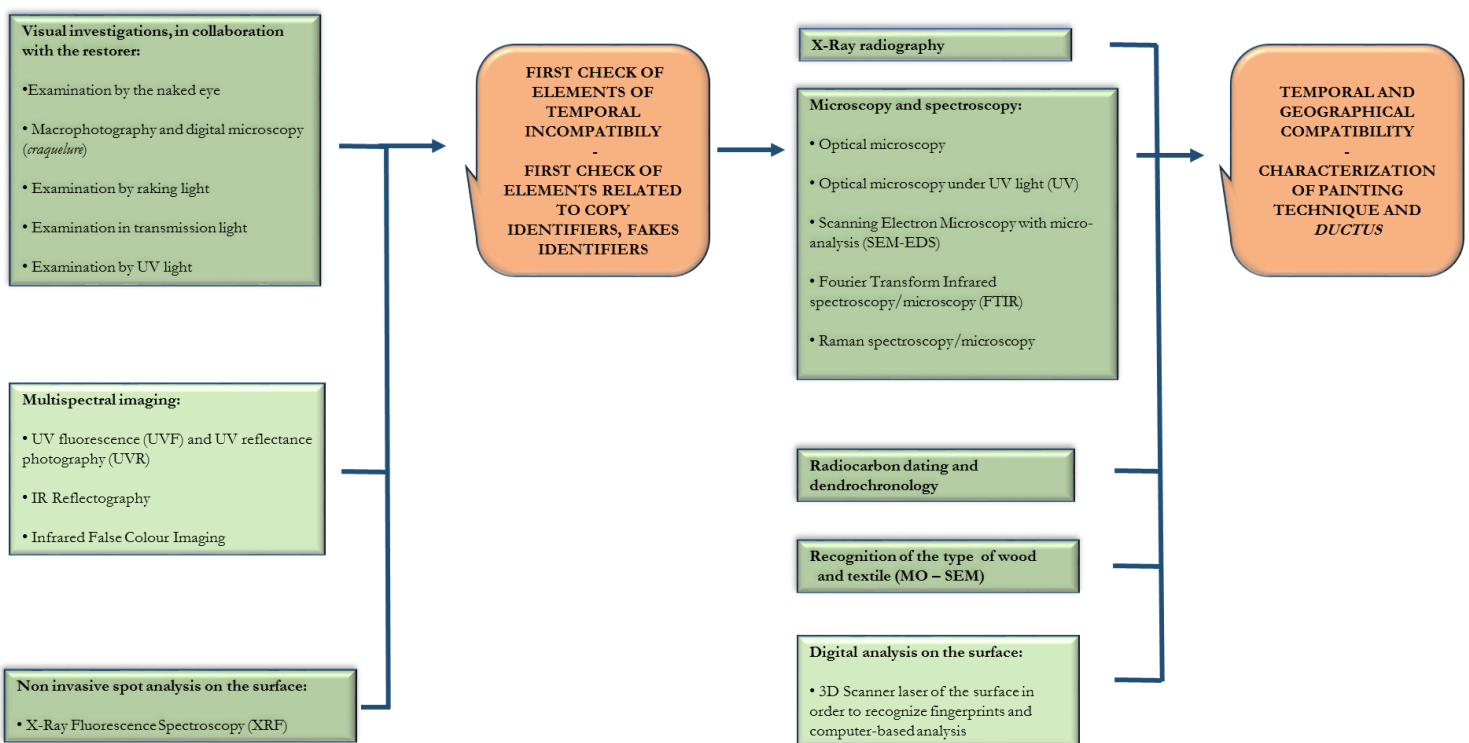


Figure 3

⁸ Pearce, 2003, pp. 125-132.

Here is the set of basic techniques considered essential in order to properly describe the object and decrease within the procedure the influence of confirmation bias that has, of course, the greatest influence in cases of interpretative uncertainty of the data (Figure 3). Some of them are complementary, others are integrated, allowing to achieve a high level of certainty and, therefore, objectivity.

For a smooth running of the process it is required that such techniques, considered in their entirety and interconnectedness, are carried out in a certain order; there are, in fact, some analyses that, although they are not useful individually, provide results leading up to following phases of the methodological *consecutio* and others which possess a consequential value.

Visual analysis, in collaboration with the restorer and related to observation data, carried out both with the naked eye and by means of instrumental techniques, provide information about the state of conservation of the work of art⁹, the material consistency and include, in addition to multispectral imaging techniques, the use of macro photography and microscopy to examine the *craquelure*. The latter already at this stage of the authentication process is of great help in providing elements which help to distinguish a fake and/or recent works from ancient ones.

As far as the analytical-instrumental techniques are concerned, the embedding of the sample is fundamental, although often underestimated. It is already demonstrated that the methodology of sample preparation affects the analytical results especially for the characterization and localization of the organic matter. To reduce the degree of uncertainty, the possibility of using the same cross-section for different investigations (i.e., SEM-EDX, FTIR and Raman) is fundamental. Currently, the most common embedding procedure is performed using resin. However, the University of Bologna has developed and adopted a procedure of double embedding: the sample is embedded in a pellet of KBr (potassium bromide) which is then embedded in resin¹⁰, in this way the cross-section is studied in a satisfactory manner (especially regarding the flatness and the external contamination) by means of several techniques. Finally, it is essential that the same operator involved in the process follows the sample from its collection on the painting, as a supervisor, up to the data elaboration.

At the same time, the study under the supervision of the art historian provides archival research for determining the provenance, the historical context and its costume. In this phase it is essential, in addition to autonomous and in-depth research, the screening of all the documents in order to verify the reliability so as not to fall into errors of the past¹¹. It is known, in fact, that sometimes the preliminary documentation of the provenance can be misinterpreted or, worse, faked in order to increase the value of an artwork. [...]

The second phase of the attribution process is defined 'COMPREHENSION OF THE ARTIFACT'. It allows to make a first step in narrowing the research field and provides a first comparison among the staff in relation to material, technical and historical aspects.

In order to make a comparison, the processed optical and scientific data are grouped with the historical-technical ones relating to each single component of the artwork (preparation, pigments, support, etc.) and those of provenance. This sharing encourages assessment of the results intended as a

⁹ It is planned to create a technical form that takes into account the description of the materials, the technique of execution and the state of conservation of the different elements and layers (support structure, support, preparatory layers, paint layers, frame). It is a fact-finding form, preliminary not only to the authentication process but also the possible restoration project.

¹⁰ Fiorillo, 2010. Prati-Rosi-Sciutto-Mazzeo-Magrini-Sotiropoulou-Van Bos, 2012.

¹¹ Interestingly, many scholars are often incurred in error building class of objects based solely on current visual evidence.

whole and not individually and allows to define the object on the basis of the following qualities: material, construction, function, origin and value¹².

The main advantage of the anthropological approach, conducted in team, is therefore to improve the ability to properly interpret the data and to facilitate a more objective study and less influenced by previous knowledge. [...]

Therefore, at the end of the comprehension phase the possibility of creating a full identity document begins to take shape. This includes the characteristics of each artistic artifact and the documented restorations, endowing the artwork with a sort of passport devoid as far as possible of subjectivity.

The last phase of the process, the 'CLASSIFICATION' phase, relates to the sharing of the technical data, the artistic-historical, technical-historical and of provenance information acquired by the art historian and his visual knowledge.

In this way, as well as comparisons with historical and technical data already known, it is possible to proceed in the planning and realisation of specific and additional analytical campaigns - carried out in collaboration with institutions and/or private collectors. The additional campaigns are deemed crucial since in most cases the scientific data of reference are lacking. They allow comparison with similar objects in the same period and of the same author, in order to understand the evolution of the painting technique. As Lanzi wrote in 1796: "...Una mano avvezza a muoversi in una data maniera, tien sempre quella: scrivendo in vecchiaia divien più lenta, più trascurata, più pesante; ma non cangia affatto carattere...".

In addition, this phase, enabling collaboration with public and private entities, provides the basis for the creation of additional identity document relating to the artworks used for comparisons. [...]

Therefore, to limit the influence of "confirmation bias" and increase the objectivity of interpretation, the classification phase should be based on shared methods in order to conceptualize the value of the artwork into its constituent parts. It is necessary to create a sort of checklist of fundamental elements (evidence) - the presence of which would determine a preliminary judgment - associating to each a certain weight. This result should be compared with a standard of sufficiency, previously established and shared by the experts, to reach a definitive judgment about the artistic artifact.

Not always a self-critical stance was considered a fundamental value in the authentication process, even more when the masterpieces of the great 'Masters' were to be examined.

Until the end of the nineteenth century, in fact, the connoisseurship of the scholars was mainly influenced by the myth of Leonardo. Often the craving of being in front of an object by the hand of da Vinci led the experts to examine only whether a work showed Leonardesque characteristics or not, without addressing the inherent problem of attribution: the real author's research. Not surprisingly, the need for a purified catalog of the artworks of Leonardo da Vinci has resulted in the long run in a general carelessness about the studies on the Florentine Master school. One was obsessed with uniqueness, but not with studying the more or less distorted echoes of the unique which make the whole group of the *Leonardeschi*.

Moreover, the qualitative and technical homogeneity of numerous paintings of Leonardo's school has generated some confusion not only among the pupils and Master, but also among the same

¹² Elliot et al., 2003, pp. 109-124.

components of Leonardo's circle¹³. Since the late nineteenth century, the drawings of the pupils were associated with the catalogue of Leonardo¹⁴, to the point of changing its individual style in a 'collective style': the artist not only multiplies, but the pupils become a sort of extension of the artistic personality of Leonardo's genius¹⁵.

However, the interest in Leonardo's *entourage* has grown over the years and, with it, the research of the individuality of Leonardo's pupils, that is the particular characteristics indicating their paternity. It becomes important, then, in addition to the class of objects corresponding to the *corpus* of the artworks of the Master, herein referred to as 'LEONARDO', also the class of 'NOT LEONARDO', nebulous set within which it is necessary to make appropriate distinctions.

In the NON LEONARDO's class different categories can be distinguished: 'Workshop work under Master's supervision', the artistic personalities of the well known pupils and the so called "classes we don't know".

In the da Vinci's *entourage*, his pupils were accustomed to exchanging their drawings and ideas¹⁶ and they often worked taking hints from da Vinci's drawings and cartoons. It explains the difficulty in discriminating the Leonardo's pieces of work from the ones whose the Master intervened on through different levels of development, creating works together with his pupils who are not always known. Moreover, Leonardo often perfected the work of his students while being carried out, helping them to achieve the most difficult parts of the processing.

This is clear in the Windsor drawing RL 12328 representing an angel, claimed to have been drawn by a pupil where the intervention of the Master is recognized.

The strong influence of Leonardo on his pupils and the pictorial quality of some pieces of art of his *atelier* are so high that some experts claim to be "Leonardos" even artworks that cannot be entirely of Leonardo's hand¹⁷. Therefore, in the process of connoisseurship, the identification of the unique property is, while it is still ubiquitously practiced, rather to be considered as risky and often illusionary. And in the same way the search for a work of art entirely by Leonardo's hand may be misleading¹⁸. It would be better, as pointed out by Seybold, to focus on finding those properties which are not exclusive but characteristics of a class of objects, recursively, believed to be crucial in the attribution process.

In addition to artworks made in collaboration where it is possible in a certain way to guess the hand of a particular student, all those small format paintings based on the Master models¹⁹ can also fit within 'Workshop work under Master's supervision' subclass.

These paintings were made in the Milanese workshop with a more or less consistent participation of Leonardo and designed to be produced in more than one version²⁰. The features of the Master

¹³ Spring-Mazzotta-Roy-Billinge-Peggie, 2011, pp. 78-82.

¹⁴ Bora, 1998, pp. 96-98. In the inventories of the Pinacoteca Ambrosiana dated to 1618, any kind of distinction among the personalities of the *entourage* Leonardo had already been lost. For collecting and dispersion of Leonardo's drawings, see Bora, 1990, pp. 206-217.

¹⁵ Syson, 2004, pp. 106-111.

¹⁶ It is the case of the portrait of a child, *Il Duchetto* (Bristol Museum and Art Gallery), attributed to Marco d'Oggiono and based on a metalpoint *Study for the Portrait of a Child* (Milan, Pinacoteca Ambrosiana) attributed to Boltraffio.

¹⁷ Kemp, 1994, p. 273 e Kemp, 2006, p. 23.

¹⁸ Siegel, 2002, p. 174.

¹⁹ It is known as some compositional inventions of the Florentine Master have survived only in the artworks of his close *entourage* of Milan: in this regard the many *Ledas* scattered in many public and private collections can be cited.

therefore tend to emerge through certain constants, in spite of any variation introduced by pupils; Leonardo's oversight permeates every product of his workshop²¹, in the case of both small devotional and profane paintings.

In these terms it is useful to mention the case study of an artwork of Leonardo's school recently re-assigned. The painting *Ritratto di Gentildonna* of private collection depicts a young woman richly dressed and bejeweled.

Many attributional hypotheses over the years ascribe this painting within Leonardo's *entourage*. One question has been raised first by Freedberg (1967), then by Trutty Cohill (1995) that is whether it is sixteenth century or not. Moreover, Giovanni Romano thought that it is an early sixteenth century attempt to create a Leonardo. Therefore, the Saint Louis Art Museum, where the panel was conserved, decide to sell it by auction in 2010.

Now, this painting has been recognized as workshop exercise and this is confirmed not only by the analysis performed by the Conservation Science Laboratory of Cultural Heritage²² - but also for the existence of a pictorial testimony attributed to Boltraffio, *Portrait of Young Woman with a Scorpion Chain*, preserved at the Columbia Museum of Art. In particular, through the study of X-rays radiography, it emerges how both paintings, by some critics traced back to the same hand, are rather the work of distinguished personalities related both to Leonardo's *entourage*. It is as if two hypothetical pupils of Leonardo, having been inspired by the same starting model, chose to implement it in a different way by completing and personalizing the subject on the basis of their skills and inventiveness. A different *modus operandi* can be confirmed: a *traslatio* of the model in the two artworks and a substantial difference regarding the treatment of skin tones are detected.

Regarding the known personalities within Leonardo's *entourage* however it is possible to identify two different levels of characteristic properties: those that allow to place an artistic personality within the Milanese workshop of Leonardo, recognizing him as a pupil or follower, and those in the best cases which allow to trace back to a particular painter, whose identification will be more difficult the greater the influence of the Master.

Finally, the group with the most complex interpretation is that of "classes we do not know": as pointed out by Dietrich Seybold in his essay, there are cases in which we have news of the artistic personality but not of their works assigned with certainty – for instance it refers to the figure of Gian Giacomo Caprotti from Oreno, the so-called Salai, whose catalogue appears still very nebulous and uncertain; there are other cases, instead, where are inserted those artists whose identity will remain unknown except by the discovery of new documents. Emblematic examples of this subclass should be considered the Master of Pala Sforzesca and the so-called Master of the Vierge aux Balances.

In conclusion, the study on the internal dynamics of the Master's workshop and the activities of his pupils or followers remains a field still unexplored and full of possibilities.

²⁰ Remember, in this regard, the question of the different variations of *The Yarnwinder Madonna*. Kemp, 1991. Crowe-Kemp, 1992. Kemp, 1994. Pedretti-Melani, 2014.

²¹ Pedretti, 2016, in *Storia e diagnosi di testimonianze leonardesche. III. Maddalena al sarcofago*, edited by Matteucci C., CB Edizioni, Poggio a Caiano, in press.

²² *Storia e diagnosi di testimonianze leonardesche. I. Ritratto di Gentildonna*, edited by Matteucci C., CB Edizioni, Poggio a Caiano, 2015.

BIBLIOGRAPHY:

- Bora, 1990.** Bora G., *I disegni dei leonardeschi e il collezionismo milanese: consistenza, fortuna, dispersione*, in *I leonardeschi a Milano. Fortuna e collezionismo*, edited by Marani P. C. and Fiorio M. T., Electa, Milano, 1990, 206-217.
- Bora, 1998.** Bora G., *I leonardeschi e il disegno*, in *I leonardeschi. L'eredità di Leonardo in Lombardia*, Skira, Milano, 1998, pp. 93-120.
- Crowe-Kemp, 1992.** Crowe A. T., Kemp M., *Leonardo da Vinci. The Mystery of the Madonna of the Yarnwinder*, exhibition catalogue, National Gallery of Scotland, Edinburgh, 1992.
- Chui-Phenix, 2011.** Chui S. A., Phenix A., *Giovanni Antonio Boltraffio's Madonna and Child in the Context of Leonardo da Vinci's Studio Practice*, proceedings of AIC 39th Annual Meeting, 24, Philadelphia, 31 May-3 June, 2011.
- Elliot et al., 2003.** Elliot R., *Towards a material history methodology*, in *Interpreting objects and collection*, edited by Pearce S., Taylor and Francis e-Library, 2003, pp. 109-124.
- Fiorillo, 2010.** Fiorillo F., *Sviluppo di metodi per la caratterizzazione e localizzazione della componente organica in cross section di campioni artistici*, Master thesis, University of Bologna, 2010.
- Harter Bachmann, 2007.** Harter Bachmann S., *Truth in art and law: Allocating the risks associate with attribution in the art auction house*, Durham theses, Durham University.
- Jestaz, 1999.** Jestaz B., *François Ier, Salai et les tableaux de Léonard*, in «Revue de l'Art», CXXVI, 1999, pp. 68-72.
- Keith-Roy, 1996.** Keith L., Roy A., *Giampietrino, Boltraffio, and the Influence of Leonardo*, in «National Gallery Technical Bulletin», 17, 1996, pp. 4-19.
- Kemp, 1991.** Kemp M., *The Madonna of the Yarnwinder in the Buccleuch Collection reconstructed in the context of Leonardo's Studio Practice*, in *I leonardeschi a Milano: fortuna e collezionismo*, edited by Fiorio M.T., Marani P.C., Electa, Milano, 1991, pp. 34-48.
- Kemp, 1994.** Kemp M., *From Scientific Analysis to the Renaissance Market: the Case of Leonardo's Madonna of the Yarnwinder*, in «The Journal of medieval and renaissance studies», XXIV, 1994, pp. 259-274.
- Kemp, 2006.** Kemp M., *Leonardo. Nella mente di un genio*, Einaudi, Torino, 2006.
- Kemp, 2014.** Kemp M., *Science and judgement by eye in the historical identification of works of art*, proceedings of Authentication in Art Congress, The Hague, 7 May 2014.
- Lomazzo, 1844.** Lomazzo G.P., *Trattato dell'arte della pittura, scultura ed architettura*, II, Roma, 1844.

- Matteucci, 2015.** Apicella S.A., Cataldo M., Fiorillo F., Matteucci C., *Storia e diagnosi di testimonianze leonardesche. I. Ritratto di Gentildonna*, edited by Matteucci C., CB Edizioni, Poggio a Caiano, 2015. [English and Russian version in press]
- Matteucci, di p. p.** Apicella S.A., Cataldo M., Cotta Ramusino A., Fiorillo F., Ghelfi B., Lamparelli M., Matteucci C., *Storia e diagnosi di testimonianze leonardesche. III. Maddalena al sarcofago*, edited by Matteucci C., CB Edizioni, Poggio a Caiano, di prossima pubblicazione. [English and Russian version in press]
- Pearce, 2003.** Pearce S., *Interpreting objects and collection*, edited by Pearce S., Taylor and Francis e-Library, 2003, pp. 109-124.
- Pedretti, 1959.** Pedretti C., *Uno "Studio" per la Gioconda*, in «L'arte», XXIV, 3, Milano, 1959, pp. 3-45.
- Pedretti–Melani, 2014.** Pedretti C., Melani M., *La Madonna dei Fusi di Leonardo da Vinci. Tre versioni per la sua prima committenza francese*, CB Edizioni, Poggio a Caiano, 2014.
- Prati-Rosi-Sciutto-Mazzeo-Magrini-Sotiropoulou-Van Bos, 2012.** Prati S., Rosi F., Sciutto G., Mazzeo R., Magrini D., Sotiropoulou S., Van Bos M., *Evaluation of the effect of six different paint cross section preparation methods on the performances of Fourier Transformed Infrared microscopy in attenuated total reflection mode*, in *Microchemical Journal*, 2012.
- Rinaldi, 2009.** Rinaldi F., *Giampietrino, dagli esordi alla Pala Fornari del 1521*, in «Raccolta Vinciana», XXXIII, 2009, pp. 235-266.
- Shell-Sironi, 1993.** Shell J., Sironi G., *Some documents for Giovanni Pietro Rizzoli: il Giampietrino?*, in «Raccolta Vinciana», XXV, 1993, pp. 121-146.
- Siegel, 2002.** Siegel J., *Schooling Leonardo: Collaboration, Desire, and the Challenge of Attribution in Pater*, in *Walter Pater: Transparencies of Desire*, edited by Brake L., Higgins L., Williams C., ELT Press, Greensboro, 2002, pp. 159-187.
- Spencer, 2004.** Spencer R. D., *The Expert versus the Object*, Oxford University Press, 2004.
- Spring-Mazzotta-Roy-Billinge-Peggie, 2011.** Spring M., Mazzotta A., Roy A., Billinge R., Peggie D., *Painting practice in Milan in the 1490s: the influence of Leonardo*, in «National Gallery Technical Bulletin», 32, pp. 78-112.
- Syson, 2004.** Syson L., *Leonardo and Leonardism in Sforza Milan*, in *Artists at court. Image-making and Identity: 1300-1550*, Chicago, 2004, pp. 106-123.
- Zecchini, 2013.** Zecchini M., *Il Caprotti di Caprotti. Storia di un pittore che non c'è*, Marsilio Editori, Venezia, 2013.