

The reciprocal need for interaction between science, history, art

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Science and its applications

Science and its applications are an integral part of our life and the assumptions underlying it are inextricably linked to the way we conceive the world and the way we see ourselves as part of it.

In a scientific context, method is fundamental, together with the contribution of those who determine procedures for the peer-review or double-blind evaluation of scientific articles, in order to arrive at a final objective and reliable judgment.

But it is not only the method that establishes scientific objectivity, because simply looking at documentary sources is enough to realize that the scientific “method” has always been closely linked to the times, places, and evaluators who have exercised this practice case by case.

This has meant that some historians, philologists and philosophers have reduced the history of science to simple news, to anecdotes chosen to support this or that theoretical model, depriving it of its ability to interpret, as well as to account for the past.

The historical approach to the scientific task suggests a different answer, just as there is no single answer that can be attributed only to “science”, there is none that can be attributed only to “history”. In fact, until a few decades ago, scholars tended to present large, all-encompassing historical frescoes. This approach has recently changed due to the greater amount of information available to us and to the new ways of viewing the sources: we have started searching for science where we used not to look for it before and, what is more important, the questions that historians try to answer have changed to involve a wider segment of people.

Hence, the intent is to present a science that has interacted across the centuries, through the culture and society of the time. Special attention is paid to the visual aspect of scientific culture. Getting to know the nature of a work of art, in fact, means being able to identify links, relationships and processes that were previously hidden. Emphasizing the visual aspect of science is also a way of remembering the material nature of scientific knowledge: science is not only in the minds of its creators or in the equations that translate it to paper, it is in the instruments of those who practice it every day and in the ways developed by researchers to establish relationships that are more solid.

Ultimately, if we want to give a complete and reliable answer by accepting and learning about the different ways in which different cultures have obtained their findings, “history,” “science” and “art” and, therefore, “method” must offer a humanly and scientifically unique and synergistic portrait.

The Italian art critic Giulio Carlo Argan in the 1980s stated that: *“All works of art are artifacts but not all artifacts are works of art. It is judgement that recognizes artistic value. However, it is not formulated on the basis of given parameters, nor is it the expression of the aesthetic pleasure or the emotion that the work arouses in the viewer. The legitimacy of the judgment depends on the mental process through which the method is achieved.”*

And in referring to method as a basis for the judgment, it is widely known that the diagnostics employed in medicine are now used in the field of art. Hence the reference to those who in antiquity revolutionized the concept of medicine and established it as a profession. More specifically the reference is to Hippocrates who lived between 460 and 377 BC and his icastic affirmation: *“Art is long; life short; opportunity fleeting; experience fallacious; judgement difficult”*. To which I would like to add and complete: *“Yet, aware, we must try”*.

Undoubtedly one of the situations in which uncertainty is an indisputable part of knowing a work of art, is experimentation. There is, therefore, an analytical process based on a historical, stylistic, aesthetic, iconographic investigation that is performed by the expert with his specific historical-humanistic training and competence, referable to the historical period of realization, to the author and to the evaluation of the state of conservation of the work of art. It is evidently a subjective evaluation and to be considered essential as a preliminary analytical finding. Then there is an objective evaluation based on the use of sensitive, specific, repeatable, reproducible diagnostic technologies that, as such, can either comfort or refute the previous evaluation: in this way the human eye together with the instrumental eye make it easier to reach a final judgment and give greater accuracy.

Below are some quotations by personalities who expressed themselves on the two apparently distant worlds of art and science, but which can actually merge and manifest themselves to give rise to two different ways to describe the same thought.

Albert Einstein wrote: *“The greatest scientists are always artists as well”*.

And the philosopher John Dewey added: *“Science is after all an art, a question of consummate skill in conducting research”*.

In more recent times, the American writer Ray Bradbury, author of the science fiction genre and the exciting Martian chronicles, wrote: *“Science is no more than an investigation of a miracle we can never explain, and art is an interpretation of that miracle”*.

And how can we not mention the particular personality with those peculiar characteristics that distinguished the prototype of the Renaissance “genius”, Leonardo da Vinci, supreme artist and universal scientist.

Always in search of knowledge through the observation of reality, of man and of all living beings, as well as of natural phenomena, Leonardo always investigated with the aim of demonstrating that theory could be confirmed by experimentation, enabling conclusions to be reached and therefore, norms to be established. In the 1500s Leonardo had already outlined and given meaning to the expression: *“When science becomes art”*.

The attribution and authentication of art works

With reference to what has been said earlier and in conforming to the need for truth in one sole way but as a result of a comparison, it is interesting to consider the issue of the attribution and authentication of works of art.

As is known, a work of art is characterized by a set of values (cultural, historical, aesthetic, artistic, spiritual, symbolic, social, technical, economic, financial, mercantile, market ones and those relating to authenticity, identity, interdisciplinarity and internationalization) that concern different areas of investigation: historical-humanistic, philological-philosophical-social, technical-economic-management, legal-identitary. This holistic value should help to establish the specific price and, therefore, the economic-financial-mercantile-market value. It is also true that the price is what is paid, the value is what is obtained. However, in the art market there is no official body that is able to provide the market quotations for an artist's works. Nonetheless, several reference points exist that help define quotations and keep them updated. They are: art galleries, auction houses, fairs / markets, catalogs, directories and the most up-to-date internet sites that offer this service, often for a fee.

Among the factors that make it possible to formulate the price of art works, some are linked to the author (the importance of the gallery and the critic who writes, the number of exhibitions, prominent awards, their 'belonging to an artistic movement) and others to the work (the subject, the period in the life of the author it was executed, its uniqueness, its state of conservation, its size).

The huge range and variety of factors, even if linked to conditions and situations that are normally not encountered except in a context of insecurity and unpredictability, can still contribute to determining the price of the work of art, on the basis - to be considered an initial and essential reference point, as outlined below - of the subjective and objective evaluation of its authenticity.

With regard to reproduction in art, from a legal point of view, in order to define a work of art as false, there must be evidence of intent to deceive. The question of fakes in art is linked to that of the other intermediate categories that exist between the authentic work and the false work and which have no fraudulent intent. They are: authentic, original, replica, copy, attributed to, signature of, school of, follower, fake, reproduced (the latter as a result of the use of computer technology).

In the national and international situation of the art market and auction houses, the evaluation carried out by experts is fundamentally of a subjective nature based on the analysis of historical, stylistic, aesthetic, iconographic and, therefore, visual aspects of the artifact that is completed with the recognized competence of the evaluator. The art expert decrees whether the work is authentic or not, thus determining its price.

When reading we routinely, regularly and frequently find, even in specialist journals, evaluations formulated and expressed as follows:

"The highest quality, the fineness of the execution, the technique, the liveliness, the psychological intensity have distinguished and supported the judgment of important historians and art critics to validate the attribution of the work of art".

The art expert, therefore, with his own critical judgment and on the basis of evaluative comparisons between the artistic qualities of the work of art in question and his hypothetical corresponding "authentic", decrees its authenticity or non-authenticity, providing an appraisal.

At the same time, attributions can be reviewed over the years, as the art historian

Carlo Bertelli claims, underlining the need to revise the system of authentication based exclusively on subjective evaluation.

Hence, the current problem regarding art fakes and, in general, non-authentic works, is precisely that of ascertaining, through scientific methods or the use of appropriate diagnostic and analytical technologies, the authenticity or non-authenticity of a work of art.

And this is what the art historian Claudio Strinati reported a few years ago in the presentation of the 11 volumes of the book series on cultural heritage and the environment - *"I beni culturali e l'ambiente"* (Pitagora Editrice - Bologna) - and of the historical-technical Journal *"Conservation Science in Cultural Heritage"* (Mimesis Edizioni, Milano-Udine) (Study Day, Ministry of Cultural Heritage and Activities, 4 March 2011, *"La formazione e la ricerca nel settore dei beni culturali e ambientali"*) which underlined the importance of developing:

«... new ideas on the famous contrast between Science and Art, completely rejecting any contrasting component».

And:

«... the scientific investigation involves a specific topic of the art historian: attribution. And we all know how a badly directed scientism can constitute, if intentionally distorted, the worst "cover" for false or aberrant judgments, because scientific data intimidates and appears more unequivocal than "humanistic" deduction on the basis of which it is the eye of the critic and the sensitivity of the scholar that decide».

Ultimately, no work of art can be considered of definite attribution if it has not reached the unanimity of the critics. More specifically, if it is true that the art of faithfully copying is as old as art itself, it is equally true that the quote for the authentic work must necessarily equal its holistic value.

The scientific contribution of the various experts, each with their own skills, can therefore allow comparison and mutual completion between subjective evaluation and objective evaluation, providing a result that is much closer to the "scientific truth".

Respecting principles in science, history, art

Modern society qualitatively establishes new requirements for education in the field of art: what is required is an education that includes all the most important elements of knowledge in the field of art and, more generally, of culture. Why is this?

An image is the source that leads to the formation of thought; creativity in all fields, whether it be scientific or technical, teaches figurative thinking. If a person's mind develops alongside his emotional world, there is practically no limit to their abilities. In this regard, modern society needs to find a new research method in the field of art to meet the new needs of students and society as a whole. And the method must respect the principles of complementarity, synthesis, interdisciplinarity and adherence to traditions.

The principle of complementarity is provided by the degree of coherence obtained through a combination of the interdisciplinary and intradisciplinary semantic relations of a single subject of study: art. This combination constructively provides new areas in the science of art – art semiotics and a complete art history. These areas include the study of nature and the development of all the main forms of art, be they visual arts, fine arts (music, dance, pictorial arts), or applied arts (architecture, design, costumes). The informative value of these studies prepares students for information systems and gives them the opportunity to shape their creative activity on the basis of culture.

The principle of synthesis is provided by a combination of historical and theoretical training and by the practice of mastering specific arts (by type). This principle aims to develop a constructive creative imaginative thought that, as is known, is a product of a special human creative ability: talent.

Talent does not exist alone. It is part of a historical whole that joins together with others of its kind in the culture of society. The birth of talent is an accident, but thanks to the historical unity of society, it is possible to partially control the development of social intelligence and not accidentally become its prisoner. Any creativity, any talent, is individualized, not only from a psychological point of view. The result of creativity is seen in the differentiation of its activities and the formation of new types.

The principle of interdisciplinarity is determined on the one hand by the needs of the modern individual and, on the other, by the modern IT basis needed for the study and mastery of the subject of study, in other words, art. The highly specialized tuition offered by various art schools today, creates deep dissatisfaction in students due to the impossibility of achieving their educational targets and the lack of demand for their occupational and spiritual aspirations in the employment market. And yet social optimism is the main condition for the manifestation and development of talent. Interdisciplinarity, in the true sense of this principle, can only be ensured by an “educational consortium” such as a traditional university. The university translates the culture of society into the culture of the individual. This is its historical role.

This circumstance determines the fourth principle: *adherence to the traditions of national culture*. As regards the theme of study, following traditions means, in the first place, historical continuity in the subject itself, and secondly, the freedom of a particular taste, personal aesthetics and the artistic preferences of a single teacher. The “tragedy” of graduates from art institutions of higher education is that, as it were, they are captured by the “teacher” (actor, director, singer, artist, etc.) from the very beginning of the course; the teacher accompanies the students for the entire period of their study and subordinates the development of their talent and personality to a single creative system, the teacher’s own.

The principle of adherence to traditions ensures the summation of the artistic experience and the competent formulation of a creative artistic task. Constructing a school subject in this way, even with its variations, may respond to the needs of a new type of student body and provide, in current conditions, the spiritual basis for creative activity.

Locating art departments and faculties of art within various other university departments and faculties is natural because of the semantic specificity of the teaching subject being examined. Therefore, the faculties of a traditional university explore from different perspectives, the world, man and society and their interrelationships. The arts, on the one hand, express an abstract model of one person’s relationship with the outside world and, on the other, are a concrete realization of this model. They have the characteristic of being historical retrospectives and that of predicting the representation of the world and of man. They are analytical in nature, because they represent the world and man both in their static and in their dynamic forms. It is precisely this analytical characteristic that aligns the disciplines of the art departments and faculties of arts with studies carried out at other faculties and departments in traditional universities.

The purpose of the different art forms is to bring people together to organize common actions in society. Therefore, its main function is to implement ideas for activities with the aim of transferring them to other members of society. These plans can cover both the subjective activity and the internal behavior of a person.

Consequently, the art acquired in connection with and is however, inherent in science and history, has a social significance, since it is associated with the optimization of the structure of modern society.

Conclusion

And how can we not return to the dictionary, in which every word represents a concept, an idea, a world, and carries within it the unmistakable content that is the result of our intelligence and sensitivity?

In referring to the word “humility”, as a common basis to express a judgment on the work of art following a comparison between the objective and subjective evaluations, it is important to emphasize its etymological meaning which is not the same as “modesty” and “reservedness”.

Indeed, if “modesty” expresses a way of being that has its essence in not wanting to be superior to others and not wanting to disturb, it is equally true that “reservedness”, though possessing some of the qualities of modesty, implies not attracting attention to oneself, not competing, not participating with passion, to isolate oneself from others for various reasons that can be linked, amongst others, to shyness or diffidence.

On the other hand, “humility”, though not a stable way of being, arises from the awareness that nothing has an unquestionable value. Not considering the ephemeral, the intrusive, the arrogant, the awkward, but opening up and communicating with objective feedback, humility appreciates what comes from others, thus allowing the injustice suffered not to be felt.

This, then, is the basic principle to refer to in the context of a meeting between several “words” when confronted with humility.