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An Introduction to the Aesthetic Precognition: Threat or Opportunity for Contemporary Art?

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ABSTRACT

The paper presents some results of a research conducted in innovative way through the use of the most popular social network (Facebook), in order to explore a new investigation field based on the intersection among Psychology of Perception, Neuroesthetics and Information Technology. Exploiting the system of “like” and “share” on which the platform is based, thousands of images of artworks were submitted to a sample of over 10,000 users worldwide. Through the metrics analysis of users’ choices, we observed that some specific compositional elements inside the artworks are able to activate the aesthetic preferences by the viewers towards some artworks rather than others. The steady repetition of the preferences related to the same compositional elements has made possible to predict the subsequent aesthetic choices by the viewers towards not yet posted artworks. According to results of our investigation it was possible to identify some “responsive” compositional elements inside the artworks, that would be able to activate the Beauty Perception and the Aesthetic Pleasure in all perceivers. The precognition of these specific elements would allow to influence and drive the aesthetic preferences of the public towards an artwork rather than another: the inclusion of those “responsive” elements within an artwork would allow to activate the Aesthetic Pleasure of the viewers, in order to predetermine and condition their aesthetic preferences. In this way it would be possible to develop a specific “Aesthetic Algorithm” able to predict the artwork’s Beauty, according to which we could know beforehand if a given artwork is capable of activating the Aesthetic Pleasure in the perceivers: the foreknowledge of the compositional elements able to activate the Aesthetic Pleasure would allow to foresee, predetermine and influence the aesthetic preferences of the viewers towards an artworks, with many implications for the Art Market. We have defined this predictive analysis of the artworks’ Beauty and the foreknowledge of aesthetic preferences of the public as *Precognitive Aesthetics*.

Keywords: Psychology, Art, Perception, Neuroesthetics, Precognition.

1. INTRODUCTION

Is it possible to identify the compositional elements inside an artwork able to activate the brain areas responsible for the Beauty recognition and the emergence of the Aesthetic Pleasure in the viewer? Maybe are we all driven by a specific form of aesthetic determinism when we admire and appreciate an artwork? If we were able to predict the artwork’s Beauty, maybe could we talk about *Aesthetic Precognition*?

Some positive feedbacks have come by analyzing the aesthetic choices of the public towards several artwork images posted on Facebook. In fact, this paper announces in advance some results of an empirical study – still in progress – that we are conducting in innovative and unconventional way through the use of the most popular social network, in order to explore a new investigation field based on the intersection among Psychology of Perception, Neuroaesthetics and Information Technology.

2. METHOD

To get our reference sample, we have opened three identical personal profiles on Facebook, on which we have posted - every day for three years - several images of contemporary artworks, specifically in the forms of sculptures and installations, created through many different artistic techniques by artists from around the world.

The sample we have analyzed consisted of the contacts aggregated to each profile, which have been divided into two clusters on the basis of their competence in art: naïve viewers (namely: not art expert) and art professionals (namely: artists, curators, critics, gallerists), both of them coming from around the world. In the course of three years thousands of images have been posted, and two of these three profiles have reached the limit of 5,000 contacts imposed by social network, due to the large number of friends requests. Therefore our research has focused on a sample consisting of over 10,000 users worldwide (not aware of being involved into the experiment), to which we submitted over 15,000 artwork images with the aim to evaluate the viewers' reactions relating to their aesthetic choices expressed through the "like" and "share" system, typical of the most popular social network.

We have carefully evaluated metrics, analytics and folksonomies provided by the social network related to the aesthetic user choices, namely the quantitative data obtained in terms of "like" and "share", as well as the user engagement percentages achieved by each artwork, which expresses rather accurately the aesthetic preferences by the viewers, analyzing and segmenting the characteristics of the artworks, and identifying the occurrences of specific compositional elements in relation to the aesthetic user choices and the aesthetic preference peaks. The experiment has confirmed that the perceivers, with no significant differences between the two clusters of viewer (art insider or non-insider) and their nationality, are somehow attracted by the same type of images and by the same combinations of compositional elements (shapes, colors, spatial layout, etc.), reacting the same way to the same aesthetic stimuli, so that when we have proposed afterwards other different artworks in accordance with the choices previously given by the viewers, it has been possible to predict rather accurately what would have been their possible aesthetic preferences towards the artworks before these were shown.

Although there was no contextualization of the artworks inside a three-dimensional exhibition space, as an art gallery or a museum – in fact through the computer screen the artwork images are shown in bidimensional mode (similar to live viewing of a painting) - the experiment has given back anyway a rather accurate idea of what are the "responsive" compositional elements inside the artwork able to activate the aesthetic pleasure in the perceiver, unlike the fMRI (Functional Magnetic Resonance Imaging), which has allowed to describe until now only the brain modifications and identify the cerebral areas connected to the aesthetic pleasure under the influence of specific visual stimuli (Di Dio, Macaluso, & Rizzolatti, 2007), regardless of the identification of aesthetically "responsive" elements within the artwork, that can activate the perception of Beauty, inducing a specific aesthetic behaviour from the public. Indeed, it has been possible to isolate some well-defined categories of compositional elements inside the artworks that, if combined in a precise way, could activate the Beauty recognition and direct the preferences of perceivers towards the

artistic objects that meet such compositional characteristics, so that during the experiment we have been able to predict with reasonable accuracy which artworks the public would have preferred. In fact, thousands of artwork images having those identified compositional characteristics have been subsequently repropose several times and the preferences of the viewers have been exactly what we expected, confirming that those compositional items were able to control the activation of Aesthetic Pleasure, stimulating or exciting the brain areas connected to the Beauty recognition, influencing thereby the aesthetic choices of the viewers and inducing specific reactions from the public.

As a countercheck, we have proposed several artwork images in which, intentionally, those “responsive” elements were absent: as expected, the percentages of preference towards these artworks have been very low. This has allowed to confirm that certain specific compositional elements inside the artworks play as attractors of the Aesthetic Pleasure enabling the Beauty recognition and the orientation of aesthetic preferences by the perceiver towards an artwork rather than another, bringing about the prediction of a precise aesthetic behavior from the public, contrary to a fully subjective interpretation or judgment about the Beauty and Aesthetic Pleasure (Reber, Schwarz, & Winkielman, 2004, p. 364-382).

3. RESULTS

As already noted by the latest research in the field of Neuroesthetics, “human beings are endowed with species-specific mechanisms that resonate in response to certain parameters present in works of art” (Di Dio et al., 2007): keeping in mind the symbolic and evocative appeal of an artwork, and the conditioning exercised by the subjective aesthetic experience, cultural background, personal values, emotions and by specificity of the individual memories of each perceiver (Reber et al., 2004), that certainly could determine a subjective and changeable judgment about the Beauty, we have observed that Beauty perception was activated more frequently in the presence of specific “responsive” elements inside the artwork, and through our experiment it has been possible to identify such compositional items by means of an accurate data gathering related to their occurrence and frequency within the artworks, and to the preferences and aesthetic choices by the viewers.

Some of the “responsive” elements capable of activating the Beauty perception and the Aesthetic Pleasure in the viewers, that have been isolated by means of the experiment conducted through Facebook, are:

- the black / white contrast;
- specific shapes and their layout or compositional equilibrium;
- the presence of regular geometries;
- certain combinations of bright colors or, on the contrary, a smooth color gradation and soft tones;
- the interaction, correlation, concordance, simplicity, balance, linearity, symmetry and harmony of the compositional elements inside the artworks;
- the presence of red color;
- the multiplication or repetition of elements identical to themselves;
- the presence of evanescent, evocative or surreal elements;
- the Golden Ratio or *sectio aurea*, namely the proportion of compositional elements expressed by the value $\Phi=1:0.618$ (Huntley, 1970; Livio, 2002);
- the presence of no more than three visual items or defined groups of figurative elements to be decoded;
- the presence of perfect circles or circular and rounded shapes;

- the miniaturization of the compositional items;
- the specific location of an artwork inside the exhibition space and into the fruition context (such as a gallery, museum, or urban space);
- the importance of light as a function of iconographic grammar and syntax of an artwork;
- the representation of semantic contrasts or paradoxical juxtaposition; a modulated and not too sharp deviation compared to the canonical images of artistic beauty;
- an unexpected deviation from the rules of spatial perspective, reconstructed normally by the viewer through the rules of perceptual constancy (according to *Gestalt Psychology*);
- the reference to the known forms of reality; the presence of images that recall dynamism and movement.

As recently demonstrated by in-depth investigations conducted through the use of neuroimaging techniques (fMRI), some of the above items are indeed capable of stimulating the right hemisphere and prefrontal cortex of the brain (Cela-Conde et al., 2004, p. 6321-6325; Kringelbach, 2005, p. 691-702), but we have observed that such compositional elements are also able to induce precise aesthetic behaviours, conditioning, orienting, directing and driving the aesthetic preferences of the viewers towards certain artworks rather than another, activating the Beauty recognition and the Aesthetic Pleasure of the public.

We believe even that, if such elements were found all together in a specific display context, in the presence of particularly susceptible individuals, they could be able to cause a perceptive shock or aesthetic breakdown in the perceiver, known as *Stendhal syndrome* (Magherini, 1989; Nicholson, Pariente, & McLoughlin, 2009).

As argued by E. H. Gombrich (1984), the factors that determine the aesthetic experience are inherent in our biological inheritance, even if we are not able to give them a conscious explanation. Towards specific visual stimuli, the aesthetic judgment seems to activate and “resonate” in the same way inside all the perceivers worldwide (Csikszentmihalyi, 1988): it’s like if the viewer, admiring an artwork having those specific characteristics, discovered something already known, a kind of immanent principle of Beauty: C. G. Jung called this principle as *Archetype* (1969). In fact, we have detected the same typology of aesthetic preferences by most viewers of both analyzed clusters (expert or non-expert in art) exposed to the submitted artwork images: the systematic and steady repetition of the same aesthetic choices towards certain artwork groups has shown that there are some specific compositional elements inside the artworks able to activate the Beauty perception and Aesthetic Pleasure in the perceivers. The responses of the viewers towards the above compositional elements have appeared to be similar for each individual, so that it has been possible to predict the following preferences from the public towards not yet submitted artworks. We have defined this phenomenon as *Aesthetic Precognition*, that is the possibility to predict in advance the aesthetic choices of a viewer towards an artwork group before this has been shown, or, for those individuals who have learned to recognize the “responsive” compositional elements inside the artworks, that specific ability to identify beforehand the structures of the artwork’s Beauty: in fact, the knowledge of these “responsive” structures would make possible to foreknow what might be the aesthetic choices of a viewer towards an artwork.

The *Aesthetic Precognition* has nothing paranormal or esoteric, because it is connected to neurophysiological and biochemical brain mechanisms and to human perception dynamics, according to which the humans realize the concept of Beauty, that would be only apparently subjective, and feel attracted or fascinated by a given artwork rather than another (Valentine, 1962). Probably the Beauty concept, that form and organize the human perceptual experience towards the artworks, is biologically and genetically predetermined, as if it had

been inscribed by ever in the human DNA (Dutton, 2009). In fact, the *Aesthetic Precognition* is basically a specific form of *aesthetic determinism* or perceptual conditioning, through which the preference of an individual towards an artwork might be predicted or predetermined: according to this perspective, it would be then possible to know in advance whether a given artwork might like or not to the viewers, or realize artworks able to activate for sure the Aesthetic Pleasure by conditioning the aesthetic perception of the public.

4. CONCLUSIONS

For centuries man has questioned about the Beauty concept and its nature, but it is possible that such Beauty is based on the brain neural structures, that nowadays can be explored and analyzed in depth (Kawabata & Zeki, 2004, p. 1699-1705; Jacobsen, Schubots, Hofel, & Cramon, 2006, p. 276-285): if Neuroesthetics has made possible to identify - through the neuroimaging technologies such as the fMRI - the brain areas activated during the viewing of an artwork (Zeki, 1999), the research we are still carrying out is allowing to track and identify the path of Beauty perception and the “responsive” compositional elements that can stimulate the emergence of Aesthetic Pleasure in the perceivers. This perceptual process has been highlighted by the steadily repeated aesthetic choices of the viewers towards the artworks submitted during the experiment, that are certainly connected to the psychobiological mechanisms of human perception (Berlyne, 1971; Vartanian & Goel, 2004, p. 893-897; Martindale, 2007).

Thanks to the study of those “responsive” compositional elements inside the artworks, the analysis of aesthetic behaviour implemented by the viewers, and the support of Neuroesthetics, which analyzes the neural mechanisms involved in the aesthetic perception, we could succeed to develop an *Aesthetic Algorithm* able to predict fairly accurately the aesthetic choices and preferences of the public towards the artworks, before they are disclosed by the perceivers. According to this *algorithm*, an artist would even be capable of modulating *the share of Beauty* to be included within the artwork, in order to induce specific reactions and emotions in the viewers (Freedberg & Gallese, 2007, p. 197-203), acting on the basis of a *Predictive Aesthetics*: a sort of subliminal, planned and premeditated aesthetic conditioning, able to influence, orientate, direct and drive the aesthetic preferences from the public. The predictive analysis of the artwork’s Beauty, based on knowledge of the compositional elements able to stimulate the Beauty perception and activate the Aesthetic Pleasure in the public, could allow the artists to operate according to the *Aesthetic Precognition*, to such an extent to modify their artistic creativity in order to influence the aesthetic choices of the viewers.

The spontaneous creativity of the artist, prompt expression of natural emotions, could turn into a intentional ability to catch in a premeditated way the aesthetic preferences of the public, activating the desired reactions from the viewers: the artist’s creative work could turn into aesthetic predetermination, creating pieces of art *predestined to be beautiful*. Indeed, founding a predictive aesthetics can be somehow dangerous: the possibility of making a deliberate and artificial construction of the Beauty, and the ability to attract and condition successfully the aesthetic preferences and choices from the public, based on the foreknowledge of “responsive” compositional elements inside the artworks, responsible for the activation of Aesthetic Pleasure, could become a new artistry or an effective technique learned by the artist to influence the aesthetic judgment of the viewers, inducing an *aesthetic premeditation* able to inhibit and influence the creative freedom, bringing about a leveling and standardization of the artistic production on a *steady beauty*, a sort of *white noise* that can stifle the spontaneous expression of the artistic creativity. In fact, the creative inspiration and *impetus* by the artist could be affected and conditioned beforehand: through the

foreknowledge of the brain activation mechanisms of Aesthetic Pleasure, the artist could become the creator of a conscious, intentional and premeditated aesthetics, subtracting the artwork from its status of *autonomous set* of meanings, susceptible to subjective interpretation by each individual (Freedberg & Gallese, 2007).

The *Aesthetic Precognition* is certainly an interesting research perspective from a scientific point of view, because it is situated at the intersection between Experimental Psychology and Empirical Aesthetics, but this new search field could upset the dynamics of value assignment to the artworks, giving more importance to the aesthetic judgement of the public, influenced in premeditated way by the artist through the *Aesthetic Precognition*, rather than to the art experts, and revolutionizing eventually the Art Market. In fact, the possibility of establishing a *Precognitive Aesthetics* could be dangerous for the current *Art System*: the predictive formula of the artwork's Beauty could influence not only the aesthetic judgment of the public, but also the same creative artist's work. The artist's talent could be built on the *precognition* of the aesthetic preferences of the public: thanks to the knowledge of the compositional elements able to influence the activation mechanisms of Aesthetic Pleasure, an artist could be capable of creating *ever-beautiful* artworks to satisfy and gratify the aesthetic tastes of the public all the time (Berlyne, 1974). The *Aesthetic Precognition* might therefore influence the creative freedom, inducing the artist to create artworks according to these predictive criteria. Through the *Aesthetic Precognition* an artist could perfectly suit the tastes of the public, predicting, anticipating and predetermining the aesthetic choices of the viewers, with the aim of achieving the universal and absolute Beauty. This *Beauty-centric* process of attribution of the artwork's value may be able to create a different market value for the artworks, or even change the value assigned so far. In fact, the creation of a new market value for an artwork, based only on its real Beauty, besides modifying the artist's creative mode, could revolutionize also the current conventional rules of determination of the artwork value, and the evaluation criteria by the art influencers, such as critics, curators, art dealers and gallery owners, who manage the Art Market nowadays.

Therefore the *Aesthetic Precognition* could represent a threat to Creativity, which through the foreknowledge of the techniques of stimulation of the Aesthetic Pleasure might be influenced, conditioned and distorted, making the artist less free and spontaneous, and reducing the Creativity to a mere behavioral marketing operation that aims to capture the public favor, with the result of determining a precise orientation of the artistic creativity. But, on the contrary, *Aesthetic Precognition* could also represent an opportunity for enrichment of the artistic and creative knowledge.

Our investigation is not over yet, but it is only at the beginning: the next step will be to identify the *Aesthetic Algorithm* able to describe in mathematical terms the process of Beauty perception and the activation mechanisms of the Aesthetic Pleasure in the viewers.

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