



## Why does art captivate us? A case study: Caravaggio's painting "Boy bitten by a lizard"

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### Abstract

Why does a painting captivate the beholder? When we are in front of a painting, the aesthetic experience is the result of a complex processing which depends on everyone's senses, imagination, memories and experience. In addition to activating some brain areas in a similar way, the painting gives rise to a perceptive, cognitive and emotional response, given by personal experiences and culture which depend on its content (iconography, symbols, movement, brushstroke), on aesthetic and social canons and from beholder's beauty education. A painting captivates because dialectical relationships come into play between the empathetic feelings experienced by the beholder and its iconographic content, as well as between the artist who conceived and created it – by leaving a mark - and the subject who experiences it. In this article, I examined the painting *Boy bitten by a lizard* by Michelangelo Merisi, known as Caravaggio, in order to try to understand whether and why, even after many centuries, it manages to captivate the beholder.

**Keywords:** Caravaggio, aesthetic experience, neuroaesthetics, naturalism, involvement

Does art experience captivate us? When we look at a painting, the aesthetic experience is the result of a protracted process which depends on everyone's senses, imagination, memories and experience. *"Observing the world is a more complex enterprise than the mere activation of the visual brain, as it implies a multimodal notion of vision that encompasses the activation of somatosensory and emotion-related components, within the more general frame of the intrinsic pragmatic nature of every intentional relation with the external world."* Looking at a painting (an artistic object) is watching it, but it is also the stimulation of our emotional, tactile and motor area. The experience of the painting is realized through a form of intersubjectivity between the artist who creates it and the beholder who observes it. This happens because the relationship between the painting and the beholder, which doesn't take place only in the act of seeing, is made possible by relationships between the empathetic imitative emotions of the beholder and the gesture (therefore by visible signs/traces: brushstrokes, cuts, engravings, etc.) of the artist who conceived and created it, as well as the content of the painting, in particular the movement seen or implied and the sensations and emotions portrayed. We are talking about relationships, because the experience of the painting is a complex fact: even the simple *"visione, o qualsiasi altra esperienza di tipo cosciente, non ha luogo nelle camere oscure della nostra mente, ma all'esterno, in relazione agli altri, in ambienti che creiamo e che a loro volta ci circondano e ci soggiogano"*.

In the article of 2017 *Visions of the body. Embodied simulation and aesthetic experience*, Gallese states that *"motor neurons not only cause movements and actions but they also respond to body-related visual, tactile and auditory stimuli, mapping the space around us, the objects at hand in that*



very same space, and the actions of others. Cortical motor networks thus provide the motor representational content of space, objects and actions”. Considering that, as he had disclosed with Guerra in 2015: “*l’integrazione multimodale di ciò che percepiamo avviene sulla base delle potenzialità d’azione, quindi intenzionali, espresse dal nostro corpo, situato in un mondo popolato da altri esseri umani simili a noi*”. Observing the actions of others means recording them in the visual system and then transferring them into motor representations. This could also demonstrate that, not only by observing others, but also by looking at an object - in our specific case, a specific painting - there could be “*l’impulso all’imitazione interiore delle azioni compiute da altri*” or actions of subjects portrayed in paintings, sculptures, art installations, etc.

*Embodied simulation* theory or simulazione incarnata starts from these assumptions to try to give a sense to emotions and sensations, to emotions that, once observed, “*activate our own internal representations of the body states that are associated with these social stimuli, as if we were engaged in a similar action or experiencing a similar emotion or sensation*”.

In his writings, Gallese specifies that “*a crucial functional mechanism of intersubjectivity by means of which the actions, emotions, and sensations of others are mapped by the same neural mechanisms that are normally activated when we act or experience similar emotions and sensations*”. *Embodied simulation* is also “*seeing-as*”, is being physically involved with the gestures and actions of the other person; identifying the emotions observed in the other; feeling an empathetic part of the other, observing the artist's gesture engraved in the painting. Seeing as artist does. As expressed in the introduction of this article, intersubjectivity turns into the gesture: looking at the creative action of the artist, which is implicit in the painting, is a way to identify with that gesture. A gesture that, when perceived, causes bodily sensations since “*i gesti impliciti dell’artista*” are perceived by observers “*in modo fisico*”.

In this light, I would like to examine in this article the painting *Boy bitten by a lizard* by Michelangelo Merisi, better known as Caravaggio, a painter who has marked 17th-century art and that of the following centuries, in order to try to answer the question: why does this painting captivate the beholder? (Image 1)

In order to answer this question, we have to experience this painting. In 2004 Leder and other researchers suggested a model of aesthetic appreciation and judgment, in which they identified five key phases of aesthetic experience: perception, explicit classification, implicit classification, cognitive control and evaluation. It means that initially a painting is examined in a perceptive way, then we have the involvement of the effects on memory (implicit), the knowledge and skills of the beholder, cognitive elaboration and evaluation of the painting.

### **Story of a painting: “Fece anche un fanciullo che da una lucerta...era morso”**

Following the various phases of aesthetic experience, we’re going to examine Caravaggio’s painting: *Boy bitten by a lizard*.

The painting has two versions, the first one which is kept at the National Gallery, in London, and the other one at the Fondazione Roberto Longhi, in Florence. Believing that both are autograph works of Caravaggio, they are to be dated to the beginning of Caravaggio's Roman stay. Even if this is not the right place for this debate, it should be noted that the authorship of the two versions has



been discussed several times, even recently, by researchers such as Longhi, Cinotti, Gregori, Zuccari, Rossi. In this article, the painting taken into consideration is that of the National Gallery, dated around 1593-94, since it is better suited to a psychological and emotional analysis of the depiction.

Let's take a look at the painting: that's a 66×49,5 cm oil on canvas. It was bought by *British Museum* in 1986 from Vincent Korda's collection. We have to make a first access to the painting, by understanding the iconography: in this case there is a young boy with black curly hair, embellished with a pink colour and plump lips, portrayed when he pulls back because he's surprised by a bite of a small reptile (mainly identified as a European green lizard or a lizard), which grabs on to his finger in a strong and tenacious way. Caravaggio artistically captures the boy at the precise moment in which, with a surprised expression, the boy tries to take his hand away from this unexpected pain. He's also moving the other hand. It means that the artist has painted, as in an ascending climax, the action/movement, in this case also the drama, as it reaches its climax. The boy is surprised, his eyes are swollen and shut, his mouth wide open, his eyebrows raised and frowning, he expresses fear and disgust at the sight of the animal and feels pain from the bite. In front of the boy, in the foreground, we have a still life scene: a glass vase, filled with water, with a rose and a jasmine branch inside, with plums and cherries around. Still life is a genre of painting which becomes preeminent in the 17th century and Caravaggio emphasizes it in several paintings like *Basket of Fruit*, *Amor Vincit Omnia*, *Bacchus*, *Young Sick Bacchus* or *Self-portrait as Bacchus*. In these paintings, the objects, flowers, fruit, musical instruments, are investigated and represented with attention to detail, as if they were placed under a magnifying glass. The imperfections and passages of light are brought into view, through a depiction that favors the reflections of the light sources external to the painting on the bottles or on the mirrored surfaces.

Later, we reveal the symbols of the painting. The scene could symbolize an allegory of *vanitas*, therefore a reflection on the fleeting nature of life and the transience of beauty and earthly goods. Other interpretations lean towards an allegory of the pain caused by love: the boy is enchanted by the rose and does not realize that he is being bitten by an insidious reptile hidden among the fruit on the table. Or even an allegory of the senses, in this case the sense of touch.

With regard to literary sources, the painting *Boy bitten by a lizard* is remembered by Mancini: "*un putto che piange per essere stato morso da un racano che tiene in mano*". It is also remembered by Baglione: "*fece anche un fanciullo che da una lucerta, la quale usciva da fiori, e da frutti, era morso; e pareva quella testa veramente stridere, et il tutto con diligenza era lavorato*" and by Von Sandrart as "*un fanciullo con una cesta piena di fiori e frutta: una lucertola (ne era uscita) per mordere la mano del fanciullo, perciò questi pareva piangere amaramente. Era mirabile a vedersi, e con questo (quadro) la sua lode crebbe assai per Roma*".

In view of this first objective analysis of the painting, which is followed by symbolic, historical and of literary sources analysis, we can explain that there are some requirements which come into play, requiring cognitive, personality and expertise arrangements. For example an art historian could focus on style and visual features of the painting, while a *naive* beholder will focus on content. We will have an emotional elaboration, depending on an affective evaluation or implicit reminders to memory. During emotional elaboration and evaluation, the mark left by the artist could act as a binding force between the object and subject.



In this case, which is the visible mark left by Caravaggio? Through the modern diagnostic studies of his paintings, it was possible to notice that in the paintings can be found some small marks and engravings related to the figures or certain movements of the main characters rather than a proper preparatory drawing. When Caravaggio traced an engraving on the painting to better set the characters in the space, it's like he left a mark and a sketch of his creative movement addressed to a specific target. Did Caravaggio forecast any reactions from the beholder? Does artist's thought is able to influence our own thinking after so many centuries? (Image 2)

### **Boy bitten by a lizard: an emotional depiction**

Analyzing how engaging this painting can be and why, also opens up theorizations on expressions and physiognomy, thus reflecting on the seventeenth-century studies of Le Brun - who already noted several links between facial expressions and emotions - on the scientific ones of Darwin and on the latest from Ekman. Caravaggio's boy with his expression of profound fear, combined with amazement and surprise at what happened, also has precise gestures. With regard to gesturality, according to Darwin it changes depending on the culture of the subject, while the expression has the same structure in humans and also in some animals. What is the boy's expression?

The boy is scared, incredulous, disgusted, in historical and literary sources it is said that he cries. It seems we can perceive that fear-amazement mentioned by Darwin in 1872 book *L'espressione delle emozioni nell'uomo e negli animali* when he writes as follows: "*la paura di solito è preceduta dallo stupore, e anzi queste due emozioni hanno molte analogie fra loro, tanto che entrambe hanno l'effetto di attivare immediatamente il senso della vista e quello dell'udito*". In both emotions it could be noticed that his eyes widen and he raises his eyebrows, with respect to fear Darwin emphasizes "*ho anche notato che in seguito a una leggera paura si ha una tendenza a sbadigliare. Uno dei sintomi più evidenti è il tremito di tutti i muscoli del corpo e spesso delle labbra, che cominciano a tremare per prime*". According to Ekman, fear, which is caused most of the time by the perception of danger or a threat of imminent pain, can lead to precise facial expressions, including: raised eyebrows, dilated pupils, upper eyelids raised unlike the lower ones which are tense with elongated lips. As for crying, according to Darwin it is associated with feelings of pain, especially in children, since adults repress crying, except in anguish.

By taking a closer look to the portrayal of facial details, they seem to recall what Darwin writes about disgust: "*il disgusto fa rovesciare il labbro inferiore ed alzar leggermente il superiore con una brusca espirazione, quasi come allora che si è nauseati o si sputa?*". E continua spiegando che "*il disgusto provoca anche della contrarietà, così questi movimenti sono di solito accompagnati dall'aggrottamento dei sopraccigli, e spesse volte da gesti destinati a respingere l'oggetto che lo determina od a schermirsi dal suo contatto*". Disgust can be caused by something that repels the sense of taste but can also be triggered by smell, touch and sight. According to Ekman, disgust, which can also lead to different emotions in men, depending on what causes it, is divided into basic and interpersonal disgust. The most common facial expression concerns the lifting of the lips, which indicate contempt and/or repulsion towards the person who caused the emotion.



In the case of the painting *Boy bitten by a lizard* the disgust of the boy comes from the contact with the animal and goes together with the sensation of fear and pain he feels during and after the animal bite. An interesting study about disgust that embraces cognitive neuroscience is that of Professor Carmelo Vicario of Messina University. In the article *Neuroestetica: una riflessione sulle basi neurobiologiche della bruttezza* Vicario highlights how “alcune delle regioni cerebrali coinvolte nell’esperienza del disgusto, come l’amigdala e l’insula risultano altresì coinvolte nell’esperienza del brutto”. This study could prove the existence of a scheme and/or neurofunctional pattern shared in response to the elaboration both of ugly and disgust sensations. So much so that “questa congruenza neurale tra brutto e disgusto non si limita al dato anatomico (ovvero alle regioni del cervello coinvolte nell’elaborazione di queste due forme di esperienza), ma include anche il dato sull’attivazione, data l’esistenza di prove sperimentali documentanti un aumento dell’attivazione di queste regioni (amigdala e insula) non soltanto in risposta all’aumento della sensibilità al disgusto, ma anche in risposta alla severità del giudizio di bruttezza”.

On the other hand, disgust has been most studied from an aesthetic-philosophical perspective between the nineteenth and twentieth centuries, mainly in correlation with the avant-garde, but already in the eighteenth century there is an interest for the topic, in relation to the studies on the sensation of ugly.

Thanks to a close study of reality, which turns into an adherence to the natural, Caravaggio was able to describe human expressions and feelings in an almost scientific way and therefore more relevant to everyday concreteness. By looking at the portraits painted by Caravaggio (as also suggested by sources), it appears that the use of peasants patterns reinforced the idea that a real face looks “uglier” than an idealized one. Caravaggio’s painting is full of “*dangerous naturalism (pericoloso naturalismo)*” because it is strongly real, expressive, psychological and inquisitive; its “operare è molto osservante del vero, che sempre lo tien d’avanti mentre che opera”.

As written by Giustiniani, according to Caravaggio “*tanta manifattura gli era a fare un quadro buono di fiori come di figure*”. He therefore rejected any type of discrimination between doing and creating and subject and object. Against any gender hierarchy, what mattered was the truth of the representation, or rather the adherence to a naturalism made of an imitation that almost reached the extreme of natural things, by following a principle of “*intensive, systematic and without intermediaries observation of natural things*” (*osservazione intensiva, sistematica e senza intermediari delle cose naturali*). Caravaggio was the first of the naturalists, except for the work *Microcosmo della pittura*, il “*primo capo de’ naturalisti*” as Scannelli claims in 1675, given that “*nell’imitazione dell’opere più vere della natura, pare che non riuscisse inferiore a nessuno*”. Scannelli also describes Caravaggio as “*unico mostro di naturalezza*” because “*portato dal proprio istinto di natura all’imitazione del vero, e così ascendendo dalla copia de’ fiori, e frutti, e da’ corpi meno perfetti e più sublimi, e dopo gl’irrazionali a gli umani ritratti, e finalmente operando intiere figure, e anco talvolta componimenti d’historie con tal verità, forza e rilievo, che bene spesso la natura, se non di fatto eguagliata, e vinta, apportando però confusione al riguardante con istupendo inganno, allettava, e rapiva l’humana vista, e però fù creduto da vari anco sopra d’ogni altro eccellentissimo*”.

In most of his paintings, he demonstrates that he knows emotions and that he knows how, through an investigation of reality, to transform and impress them on the canvas. His painting,



adhering to nature, is capable of arousing quite opposite and contradictory emotions. For many critics of his time, this showing of reality, of everyday life, of what may appear ugly, horrid, unusual, was a cause for debate and sarcasm. One of the biographers of the time, writes as follows: “*all’hora cominciò l’imitatione delle cose vili, ricercandosi le sozzure, e le deformità, come sogliono fare alcuni ansiosamente*”. Because Caravaggio portrays the nature eroded, a bloody and scared Medusa, the boy who cries: terrible expressions, tattered clothes, dirty and contracted faces, violent and gruesome backdrops.

A similar argument had already been addressed by Giovanni Battista Agucchi in the work *Trattato della pittura*, written between 1607 and 1615, where he wrote with anti-naturalistic views that Caravaggio is lacking in decency “*hà lasciato indietro l’Idea della bellezza, disposto di seguire del tutto la similitudine*”. Even so, Agucchi himself states that the painter is still “*eccellentissimo nel colorire*”, by showing that his criticism was mainly addressed to the extreme naturalism and then to the hypothetical idea of beauty and ugly. In fact Caravaggio “*non traccia un solo tratto senza aderire alla natura, copiandola e dipingendola*”.

Caravaggio is therefore included in the baroque aesthetic, which artistically opens the modern age, through a new idea of art, as well as a new conception of beauty that contemplates the conflict among order and mess, which is almost an oxymoron.

### **Why does this painting captivate the beholder?**

By examine the painting *Boy bitten by a lizard*, Cattaneo remarks that “*When looking at this masterpiece, the level of activation in visual regions is likely to be modulated by subjectively aesthetic preference for this painting (e.g., Vartanian and Goel 2004). The image of the boy pulling back his hand likely engages the mirror neuron system (Freedberg and Gallese 2007). This “embodied resonance” has been hypothesized to make the observers empathize with the boy’s feeling, engaging them emotionally. Moreover, engaging with art may be rewarding per se, thus leading to activation in reward-related brain regions (e.g., Lacey et al. 2011). Finally, contextual information (exhibited at the National Gallery) and individual art expertise may modulate neural responses throughout the brain, with activation of this extended meaningknowledge neural system also affecting (in an exquisitely idiosyncratic way) the aesthetic experience*”.

In other words, by looking at the painting *Boy bitten by a lizard* it is likely that the level of activation in visual regions is modulated by the subjective aesthetic preference for this painting, so while the boy portrayed retracts his hand in fear, it probably activates the mirror neuron system. This embodied resonance that arises between the painting and the beholder could make observers empathize with the boy's feelings, involving them emotionally. In addition, looking at art is rewarding because it leads to activation of reward-related brain regions. All of this is also modulated by individual experiences.

Why does a painting captivate the beholder? Why Caravaggio’s painting captivate the beholder?

As mentioned in the introduction to this article, when we look at art, the aesthetic experience is the result of a complex processing that depends on the senses, imagination, memories and experiences of each one. Indeed we can add that, considering the complexity of the



neurophysiological bases, it gets hard to construct a unique experimental design. In addition to activating some areas in a similar way (*bottom-up* processes generated by the perceptual analysis of stimuli), the painting elicits a cognitive and emotional response given by personal experiences and culture (*top-down* processes that depend on content of the painting, culture, aesthetic and social canons, education of the beholder). A painting captivates the beholder because dialectical relationships come into play between the empathic feelings experienced by those who observe it and its content (the actions and emotions depicted; the sensations transmitted by the painting) and therefore we are talking about relationships “between embodied simulation-driven empathic feelings in the observer and the content of art works, in terms of the actions, intentions, objects, emotions, and sensations portrayed in a given visual art work, or of those associatively activated in the beholder by art work’s content”.

## Conclusion

Above all others, Caravaggio is an artist who lived a full, dramatic and sometimes violent life: the apprenticeship in Milan, the first years of poverty in Rome –after leaving the Lombardy Region – the murder of Tomassoni, for which he is sentenced to the death penalty, the imprisonment in Malta, after suffering the disgrace of expulsion from the Order of the Knights of Malta and the last years between Sicily and Naples. This temperament and drama of living has often created paintings with a strong emotional impact, which tell the reality without embellishments. For this reason, he is considered as the painter of reality or naturalism, since in the iconographic representation there was no hierarchy among a subject or object. He is the artist who told the story of an era, the 1600s, maybe the century most similar to our days, due to its complexity and feeling of precariousness of life, sprang from pestilence and social and economic crisis. When the story of an artist is similar to the background, thoughts and disturbances of the beholder, then the paintings created by him have a greater chance to be described as “beautiful”, for their ability to evocate and captivate. Contemplating, plunging and empathize with his paintings means understanding his art and personality: that of an artist (no longer a craftsman), who in 1600 has left a permanent mark in the history of art.

In this article, I examined a particular painting - *Boy bitten by a lizard* – , in order to demonstrate that captivates the beholder for several reasons: we feel empathy for the physical sensations of the boy; we feel involved for the emotions he feels; there is an involvement for the gestures of the boy; there is an involvement arisen from the implicit gesture of the artist, that is the mark left by Caravaggio. Art is an intentional work made by the man and when the beholder stands in front of the painting has also an intense bodily reaction.

## Conflicts of Interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.



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## Images



[image 1] Michelangelo Merisi, Boy bitten by a lizard, London, The National Gallery. Image credits: <https://www.nationalgallery.org.uk/paintings/michelangelo-merisi-da-caravaggio-boy-bitten-by-a-lizard>



[image 2] Michelangelo Merisi, detail taken from *Boy bitten by a lizard*, London, The National Gallery. <https://www.nationalgalleryimages.co.uk/>



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