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Empathy in Art and Science: Embodied Cognition and Affect in Film

Graça P. Corrêa[1]

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Abstract
Empathy is a major aspect of the interplay between filmmaking and reception. Philosophers and neuroscientists have asserted how film's technical and conceptual devices seemingly simulate the streamings of consciousness by rendering through images the very processes of thought. More recently, in a noteworthy collaborative work between neuroscience and film theory, Vittorio Gallese and Michele Guerra (2020) have observed how the process of "embodied simulation" is at the basis of empathy, making possible intense and diversified experiences of space, objects and other individuals, and offering an important contribution to the study of how films are experienced and co-created by viewers. Drawing on these arguments from neuroscience, philosophy and film theory, in this paper I explore a renewed relationship between empathy and film aesthetics.

Keywords Embodied simulation · Empathy in aesthetics · Film studies and criticism · Film philosophy · Cinematurgy

In an article on the lack of consensus on the definition of empathy,[1] Andrea Pinotti and Massimo Salgaro (2019) observe how since the beginning of its conceptualization, empathy has been linked to the fictional and artistic dimensions. Its investigation, however, has moved across disciplines and cultural contexts during the last 100 and more years, first emerging in proto-Romantic late eighteenth century Germany

[1] According to Pinotti and Salgaro, this conceptual confusion is due to how many different phenomena such as sympathy, affective contagion, imitation and mind-reading are mistaken for the phenomenon of empathy (2019, 142).

✉ Graça P. Corrêa
graca.p.correa@gmail.com; mdcorrea@fc.ul.pt

[1] CFCUL-Center for the Philosophy of Sciences, FCUL-Faculty of Sciences of the University of Lisboa, Campo Grande, Ed. C4, 3° piso, Sala 4.3.12, 1749–016, Lisboa, Portugal

philosophy, secondly in German aesthetics and psychology of the late nineteenth century, and then, in its third stage, mostly in Anglo-Saxon psychological studies with attendant scientific measurement tests (Pinotti and Salgaro 2019). According to them, empathy as an object of research is now enjoying its fourth phase, the neuroscientific one, which has started in the 1980s and was prompted by the discovery of mirror mechanisms. Although the involvement of neuroscience in the study of empathy is a relatively recent development, I suggest that it can represent a most valuable contribution from the life sciences to the human sciences, by providing neurophysiological hypotheses and evidence to long-standing philosophical and aesthetic debates on the process of empathy in both art making and reception.

In film studies, empathy has long been considered a major aspect of the interplay between filmmaking and reception. As early as 1940, film theorist Siegfried Kracauer found that cinema's most distinctive quality derives from how the material elements "directly stimulate the material layers of the human being: his nerves, his senses, his entire *physiological substance*" (Hansem 2012, p. 262). Likewise, film philosophers have emphasized the sensual and perceptual aspects of film, equating it to a medium capable of rendering through images the very processes of affect and thought (Deleuze 1989), whilst some claim that films may be affectively "prefocused" with built-in gestalt strategies in the ways they mobilize the viewer (Carroll 2006; Plantinga 2009).

Neuroscientists who endorse embodied cognition models have asserted how film's technical and conceptual devices—zooming, fading, dissolving, omission, allusion, association and juxtaposition of all sorts—seemingly mimic the streamings and veerings of consciousness itself (Sacks 2004), calling attention to how films may provide a noticeable discrepancy between real time and the spectator own's perception of time, depending both on the way images and events are presented to us, and on our emotional reactions to the images that are presented (Damasio 2002). More recently, in a significant collaborative work between neuroscience and film studies, Vittorio Gallese and Michele Guerra (2020) have observed how the process of "embodied simulation" is at the basis of empathy, making possible intense and diversified experiences of space, objects and other human and non-human beings, and thus offering an important contribution to the study of how films are experienced and co-created by viewers.

Drawing on these arguments from neuroscience, philosophy and film theory, in this article I demonstrate how the neuroscientific model of embodied simulation has revitalized the relation between empathy and aesthetics, and explore the role played by dramaturgy in prompting empathy, in both film making and reception.

1 Bringing Back Empathy to Aesthetics

Although the idea of empathy was already employed in the philosophical writings of Johann Gottfried Herder in the late eighteenth century (Edwards 2013), and subsequently in nineteenth century German Romantic aesthetics to designate an ability to *sich einfühlen* (feel oneself into) works of art, the concept of *Einfuhlung* (feeling-into) was originally developed by historian Robert Vischer in 1873, adopted by

philosopher Theodor Lipps in 1903, and finally translated into *empathy* by British psychologist Edward B. Titchener in 1909 (John 2017).

In recent years, the notion of empathy has become very popular, both as a term used in our daily communication and as a process investigated by the arts, humanities and sciences. Such continued interest signals the ongoing need by human beings to understand the complexity of how they experience the world and, in turn, of how they may conceive the Other's experience of the world. However, the notion of empathy has recently been chiefly used to refer to supportive feelings of acceptance and recognition of other human beings, and in this sense is often conflated with pity and compassion.[2] As a result, the concept of empathy became residual in aesthetics, perhaps due to several modernist artistic movements that prized alienation and defamiliarization rather than identification (Depew 2005). I suggest that we should bring back this sharing of feeling and perspective-taking to film studies, regardless of aesthetic genres, since empathic processes do not imply identifying with an object/character/event/landscape within a mimetic realistic convention.

In this sense I want to recuperate Lipps's notions of empathy in aesthetics, as significantly operational in our experiencing of works of art, namely in film reception. As the instigator of the first scientific theory of *Einfühlung*, Lipps used the notion not only to explain how we may understand the mental states of other people, but also how we experience works of art, inanimate objects, geometric forms and optical illusions. In 1903, whilst watching a trapezist swing, Lipps observed how "a fusion is achieved on the basis of an 'inner imitation' through which the observer internally reproduces the movements of the observed person. Perceived movements are instinctively and simultaneously mirrored by kinesthetic 'strivings' and the experience of corresponding feelings in the observer" (Lipps 1903, 121–126). According to Lipps, *einfühlung* or empathy entails body-mind movement or activity in the observer, bound up with the observed object, within a process of aesthetic resonance. Lipps's theory of "inner imitation" has been confirmed by present-day scientific findings and propositions, namely through the concept of emotional contagion of the "perception-action model of empathy" proposed by Frans de Waal and Stephanie Preston,[3] as well as through the discovery of mirror neurons by Giacomo Rizzolatti and Vittorio Gallese.

Lipps's thinking inspired phenomenologist philosophers Edmund Husserl and Edith Stein, among others. For Edith Stein, however, rather than a projection or a fusion, empathy is an accompaniment, in which the spectator's subjectivity is not *one with* the Other's subjectivity, but only *with*.[4] The empathizer is side-by-side with

[2] I suggest that this is perhaps due to Titchener's translation of the concept into "empathy"—derived from the Greek word ἐμπάθεια or empatheia, meaning "physical affection or passion," having its roots in ἐν ("in," "at") and πάθος (pathos, pathein, "suffering" with "passion"), thus denoting a pitying emotional process.

[3] Ethologist Frans de Waal's and psychologist Stephanie Preston's Perception-Action Model (PAM) holds that perception of another's state automatically triggers bodily responses in us that operate at multiple levels, some of them below the level of any kind of awareness, and that emotional contagion is therefore a relatively automatic and involuntary empathic reaction. Empathy does not require conscious awareness because humans are organically wired for this connective and adaptive tool.

[4] Stein also argued that the process of empathy is a necessary condition for self-knowledge of one's material nature. Knowledge of one's nature requires a community: not only must one have empathy, but there must also be other people who have empathy in order for a person to attain this kind of self-knowledge.

the empathized, their adjacent position implies a paradoxical proximity at a distance (Stein 1917). Such contradictory "proximity at a distance" may suitably be applied to the film experience, since cinematic spectating gives simultaneously the effect of an actual happening, and that of beholding a picture, i.e., there is a certain uncanniness to its experience (D'Aloia 2012). Empathy involves a participatory enactment of the situation of the subject within the awareness that one is not the subject, thus generating an "empathic unsettlement" (LaCapra 2014).

Most significantly, Stein emphasizes how the process of empathy is not only a result of inner imitation but also due to a dynamic process of imagining activity in relation to the object of perception. This corresponds to present-day studies using fMRI, which suggest that empathy can be experienced through bottom-up and top-down modes of processing, which in turn activate different areas of the brain (Gallese Vittorio and Michele Guerra 2020, 87). Bottom-up is achieved via the *mirror neuron system* (MNS) allowing for a direct sharing of the emotional states of others, whereby we automatically synchronize with face expressions, postures, vocalizations and movements of another person. Top-down processing implies a *cognitive perspective-taking* or *theory of mind* (ToM), whereby we first distinguish between ourselves and others, and subsequently imagine how another person feels. Stein's dual activation of empathy draws on Husserl's phenomenological double view of body-as-subject (*Leib*) and body-as-object (Körper), a perspective also endorsed by Merleau-Ponty (1962). It is also suggestive of how empathy is activated not only in cinematic spectating, but also in film making, as I will explain ahead.

2 Embodied Simulation in Experiencing Artworks

Although there are several theorists of empathy coming from diverse disciplines, all agree that it is a feeling composed of perceptual, emotional and cognitive levels grounded in the *lived-body*, and that therefore having *intersubjectivity* and *intercorporeality* as its foundational components. Perhaps for this reason, following the discovery of mirror neurons and mirroring mechanisms, empathy regained recognition as a topic of scientific research. If, until then, the study of empathy tended to be considered speculative and highly subjective, because it defied precise and direct evidence, it suddenly ceased to be understood as a mere individual or social propensity, to become a neurobiological occurrence supported by multilevel neuronal networks (Ebisch, 2022: 477).

Neuroscience provided an organic basis for the power of empathic resonance, when in the mid-1990s in Italy, scientists Giacomo Rizzolatti and Vittorio Gallese discovered a special class of neurons in the brain of monkeys and birds that came to be called *mirror neurons* (Rizzolatti and Sinigaglia 1996). The term "mirror neuron" refers to the fact, now proven by a large body of evidence, that there is significant overlap between neural areas of excitation that underlie our observation of another person's action, and areas that are stimulated when we execute that very same action (Gallese and Guerra 2022). This subpersonal mimetic mechanism is believed to be the root of empathy.

Through mirror mechanisms, a group of neurons activate: (1) when a motor action is executed; (2) when observing someone else performing the same action or gesture; (3) upon hearing the sound that the action generates; (4) when the most significant part of the motor act being observed is not visible and can only be imagined; (5) when we observe the facial expression of an emotion; (6) when we see the body of another person being touched, caressed, slapped, or wounded (Gallese Vittorio and Michele Guerra 2020). Actions, movements, emotions and sensations can therefore activate groups of neurons when they are performed or experienced directly in the first person, when their performance is observed in others, and when they are imagined. This implies that the motor system plays a decisive role in our embodied relationship with films (as well as in beholding other works of art), and that our corporeality contributes decisively in our response to various cinematographic techniques. Because the body is the primary medium of our contact with otherness, empathy unfolds as an interactive process in the sphere of intercorporeality.

The discovery of mirror mechanisms has contributed towards a significant validation of *simulation theory*. Neuroscientist Marc Jeannerod was the first to apply the concept of simulation in neuroscience, when he proposed that motor imagination could be considered as a form of simulation (Jeannerod 1994). After having conducted several experiments of mental simulations of physical exercises, Jeannerod concluded that when we imagine performing an action, certain physiological parameters, such as our heart beat and breathing rhythm, behave as if we were performing that same action physically. This implies that touch and movement, for example, can be evoked by embodied simulation in the absence of explicit movements or contact.

Embodied simulation assumes a significant role in aesthetic experience, both in creating and beholding works of art. It is at the basis of empathy, through a complex process in which we experience the sensation of living *in* an external object, and where our inner activity experience is transferred *onto* the object. As Gallese and Guerra state, "Automatic empathetic responses constitute a basic level of response to images and to works of art. Underlying such responses is the process of embodied simulation that enables the direct experiential understanding of the intentional and emotional contents of images. This basic level of reaction to images becomes essential to any understanding of their effectiveness as art" (Gallese and Guerra 2022, 202).

A similar process of interaction between artwork and beholder was discerned and proposed in the late nineteenth century by Symbolist poet Stephane Mallarmé through his notion of a *theatre of the mind*, in which reading is a means of evoking an imaginary theatre, whereby any skillfully imaginative playtext is played by the imagination of its beholder as a spatially and bodily lived "event-drama" (Puchner 2010). In effect, according to current neuroscientific findings on embodied simulation, *reading is a highly embodied activity* not only because "we need our senses in order to be able to perceive things," but also because "our bodies act as sounding boards for our mental simulations of story-worlds and of characters' perceptions, emotions, and actions within those virtual worlds" (Mossner 2017, p. 3). Embodied simulation also recalls what neuroscientist Antonio Damasio has termed an "as-if-body-loop" process, whereby "the body-sensing areas constitute a sort of theater where not only the 'actual' body states can be 'performed,' but varied assortments of 'false' body

states can be enacted as well" (Damasio 2003, p. 118). Because it is so relevant to the empathic dialogical sharing of emotions and affects, embodied simulation confirms how empathic processes are worthy objects of scientific-philosophical-artistic interdisciplinary study.

3 Embodied Simulation in Film

The significance of embodied simulation in film has been specifically addressed by Vittorio Gallese and Michele Guerra in their book *The Empathic Screen* (2020), which they describe as "an exercise of consilience" coming from two distinct fields, namely neuroscience and art studies, on the approach to a common topic. Their approach is an experimental aesthetics (from *aisthesis*, a multimodal perception through a combination of the senses) that relies on brain imaging techniques accompanied by a detailed phenomenological analysis of the perceptive, motor, and cognitive processes involved in film-viewing. Having conducted experiments with film spectators using functional magnetic resonance imaging (fMRI), high-density electroencephalogram (EEG), magnetoencephalography (MEG), and transcranial magnetic stimulation (TMS), among other brain imaging techniques, Gallese and Guerra assert that the levels of empathic and corporeal involvement through embodied simulation is crucial towards understanding how the technology of cinema works.

According to Gallese's model of embodied cognition—which engages a holistic view of the brain-body system where "body parts, actions, or more in general corporeal representations play a critical role in the cognitive processes" (2020, 9), thus strongly challenging the dominant "classic cognitive science model according to which our conceptual knowledge of the world is supported by representations from abstract and symbolic computations" (2020, 157)—embodied simulation operates in multisensory fashion. Contradicting the computational theory of mind, Gallese and Guerra affirm that a synesthetic "integration of the various sensory modalities is the rule and not the exception in humans and non-human primates," and that, as a result, "visual areas also respond to tactile and auditory stimuli just as the somatosensory and acoustic areas respond also to visual stimuli" (2020, 156). In contrast to a classic cognitivist perspective, they suggest that there is a pre-linguistic, pre-verbal dimension to intersubjectivity, as the motor system is equipped, well before birth, with functional properties that enable interactions with other bodies. The principal trait of this corporeal involvement with otherness is *intercorporeality*, a process of motor cognition whereby we "immediately comprehend most of the sensory-motor and emotional intentions [of others] without the need to explicitly represent them linguistically" (2020, 4). For example, when we see the body of another person being touched, caressed, or wounded, our somatosensory cortices are likely to be activated, as if our body were subject to tactile stimulation. In the same manner, we understand the meaning of a facial expression by reusing the same neural circuits on which our experience of that emotional expression is based, as both the observation and the mimicry of basic emotional facial expressions activate the same group of neuronal structures.

Another important aspect of embodied simulation that relates to film viewing is how the brain-body system maps the space around the body, independently of the position of the eyes. Not only is there a priority of motor space over visual space, but our multisensorial *peri-personal space* is based on the integration of visual, tactile, acoustic, and proprioceptive information that is anchored to the various parts of the body, and not to the position of the eye. Because our body's spatiality is not a *spatiality of position*, but a *spatiality of situation* (as anticipated by Merleau-Ponty), the spatiality of the situations in a film can be experienced by spectators through both the simulation of the motor potentialities of the actors, and the movements of the camera (2020, 24). This allows the cinematic medium to provide us with the opportunity to simulate the experiences of real others in situations remote from us in space and/or time (documentary films), and of imaginary others in imaginary places (fiction films). Most notably, Gallese and Guerra's embodied simulation hypothesis reintroduces the role of empathy in the experience of moving images. In effect, although it embraces a wider range of aspects (e.g. construction of spatial maps, and relations with objects), *embodied simulation coincides with the concept of empathy* and constitutes its actual foundation.

4 Cinematic Embodied Process of Thinking

As stated in the introduction, there have been several debates on the process of empathy in filmmaking and reception, by film theorists and philosophers, some of which have directly and indirectly contributed concepts to neuroscientific research. Already in 1940, film theorist Siegfried Kracauer (from the Frankfurt School of Criticism) writes that film instigates a "resonance effect, provoking in the spectator such kinesthetic responses as muscular reflexes, motor impulses, or the like" (Kracauer 1997, p. 158). Kracauer's major research aim revolved around "which role technological media were playing in the historic restructuration of subjectivity: whether they were giving rise to new forms of imagination, expression, and collectivity, or whether they were merely perfecting techniques of subjection and domination" (Hansem 2012, pp. 163-4). Therefore, he was particularly interested in the materiality of film and its relation to the human "physiological substance." In a similar vein, early film theorist Béla Balázs (1894–1949) recognized how cinematic close-ups of the human face rendered "feelings, emotions, moods, intentions and thoughts" not only perceptible but also tangible (1952, 61), and how magnified bodily gestures on-screen revealed the "psychological subtleties of moving emotions" (1952, 67), signaling a new turn of western culture towards the visual. As Gallese and Guerra observe, Balázs's work anticipated cognitivist studies of facial feedback, contemporary embodiment theory, and phenomenological analysis by some eighty years (2020, 318).

From a phenomenological perspective inspired by Merleau-Ponty's work, Vivian Sobchack coined the term "cinesthetic" to refer to the active process of viewing films, an adjective combining cinema, synesthesia (cross-modal perception), and coenesthesia (self- awareness originating from parts of the body). She proposed the concept of an "embodied imagination" related to proprioception and to the "subjective, lived feeling of our material being" (2004, 192), a process felt during the experience of

watching films. Rejecting the phenomenological ontology of the flesh,[5] and although he never uses the term empathy, Gilles Deleuze argues that cinema offers us an experience of *feeling-into* the screen, as some films are capable of presenting a direct image of thought-time, or "time-image" to its viewers. Such films open up the act of thinking, tending towards "a point of indiscernibility of the real and the imaginary," and therefore a "collapse of traditional sensory-motor situations" (1997, 12). Time-image becomes thought in itself, "thought of the image, thought in the image" (1997, 174). In this take on film, Deleuze is clearly influenced by the writings of Antonin Artaud, a theatre and film practitioner-theorist who aimed at a cinema that could "express the actual functioning of thought" and physically affect spectators on a subconscious level; or at a cinematic experience "so powerful" that it would project the viewers "beyond their civilized selves, so as to rediscover their primitive instincts" (Artaud 1970, 82–83).

Thus, just as neuroscientists have equated film to the flow of consciousness itself, philosophers have suggested, for a long time now, that film approximates the process of thinking itself. Taking a step further, advocates of Film-as-Philosophy (FAP) argue that film can add a new kind of thought to philosophy, an imagistic thinking, and accordingly hold an active place in philosophical inquiry; in turn, philosophy may become an alternative kind of film. Among them is Daniel Frampton, who proposes *filmosophy* as a radically philosophical theory and practice of "film-thinking" (2006). Arguing that film criticism has been mostly about characters, plot, acting and cultural references, Frampton proposes to investigate how film thinks and records emotions through sound-images. Opposing the classic cognitivism that permeates conventional philosophy of film, he considers that "we are already well suited to understanding film" (2006, 169), if only we cease to be passive viewers and become active co-creators through an empathetic involvement with the cinematic experience or *filmind*. Instead of questioning cinema's relationship to reality, we must reconceptualize film as a thinking process, and understand how it "transfigures its subjects, how it communicates ideas, how it resembles memory and dream and poetry" (2006, 10); or how it "might be said to be crying in empathy, sweating out loud, feeling pain (…). The concept of the *filmind* should provoke these kinds of interpretations" (2006, 174).

5 Cinematurgy and Embodied Resonance

It becomes useful to recall, at this stage, the forgotten Russian formalist concept of *cinematurgy*, which concerns a study beyond cinematic narrative (plot, character) to concentrate on cinematic systems of visual style, such as montage, cinematography and *mise-en-scene*. While narrative has to do with content, style refers to the systematic and significant use of techniques of the medium that produce aesthetic results, and is therefore useful for rethinking and problematizing our ideas about both film

[5] In *What is Philosophy*? (NY: Verso, 1994), Deleuze and Guattari suggest that the concept of the flesh retains the transcendence of subjectivity, a kind of theological prejudice. For them what is found in art are percepts: "percepts are no longer perceptions; they are independent of a state of those who experience them […] Sensations, percepts and affects are beings whose validity lies in themselves and exceeds any lives" (164).

making and reception. Style in film touches on many different aspects, such as choice of lens (e.g., large depth-of-field vs. small depth-of-field), camera movement (externally generated or objective; zoom; dolly; crane; internally generated or POV; Steadicam), type of editing (continuity editing; 180-degree rule; jump-cut editing; rhythmic tonal editing), choice of framing, type and angle of the shots (wide shot; close-up, etc.), lighting, sound (acoustic effects; music), scene and art design, positioning and blocking of actors, and style of acting. Indeed, cinematurgy entails a comprehensive understanding of the architecture of a film work, and may be operationalized so as to understand how certain stylistic aspects of cinematic creation elicit distinct embodied outcomes and ethical affects.

Indeed, a most significant line of research of empathy in film would have to probe not just film reception but also the process of creation, leading to an investigation of what are the aesthetic strategies used by filmmakers to stimulate or inhibit an embodied emotional resonance upon viewing films. Although research on the role screen aesthetics plays in cuing intentional empathy is being pursued by many scholars—among them Jane Stadler, Carl Plantinga, Noël Carroll, Adriano D'Aloia and Amy Coplan—due to the scope of this article I will touch upon but a few of their observations.

Cognitive film criticism has particularly recuperated the concept of aesthetic modes to reveal how specific expressive strategies and techniques may evoke distinct effects in terms of perceptual experience, affective engagement and emotional address. The most sustained investigation on how particular film genres elicit related emotions has been Noël Carroll's work, according to which mostly any film comprises a *criterially prefocused film text* that embodies a conception of a situation from an emotive point of view, and is apt to elicit predictable responses (including emotive focus) in standard audiences. Films are "ways of feeling," but they differ in the means they affect and mobilize the viewer: "Which particular dysphoric or euphoric emotion is engaged, of course, depends upon the way that the film text is criterially prefocused" (Carroll 2006, p. 224).

Similarly engaged with the means by which movies stimulate emotions and affective experiences, Carl Plantinga appeals to "cognitive-perceptual theory," distinguishing it from a cognitive fundamentalist perspective that emphasizes conscious evaluations in the genesis of human emotion. On the contrary, he argues that much of what leads a person to have an emotion occurs at the level of the "cognitive unconscious," which embraces "unconscious perception, unconscious affect, and unconscious conation (pleasure and desire)" (2009, 49–50). Like other cognitive theorists, Plantinga distinguishes affects from emotions: whereas the former are bodily states automatically felt, the latter "are intentional states expressive of a relationship between a person and the environment; they therefore have objects, that is, they are directed at something or someone, whether real or imagined" (2009, 79). Films are *emotionally prefocused* since built into them is a particular way of seeing events and characters, a specific order and duration to those events, and a built-in perspective that elicits a particular sort of emotional response.

In a similar way, but proceeding from an embodied cognition perspective, Gallese and Guerra observe that "filmmakers have various ways of creating the conditions necessary to reinforce and dramaturgically modulate the essential components

of cinema: movement, action, interaction, gestures, sentiments, and emotions," so as to place us "in a position to share the situations, actions, gestures, and emotions that take place in that other dimension represented on the cinema screen" (2020, 45). By way of example, the use of static film shots that have no camera movement may elicit different readings: in Manoel de Oliveira's *Um Filme Falado* (2003), the stationary camera provides a powerful theatrical frame, drawing our attention to a profusion of minute details and objects from the non-human environment that enfolds all human action; in Ruben Östlund's *Play* (2011), it allows for a presentation of the film's subjects from a great distance, emphasizing their awkward spatial relationship to one another, and generating an ironic humor in our detached spectating experience; in Michael Haneke's first version of *Funny Games* (1997), the stationary camera forces spectators to reflect upon their role of observers, making them vulnerable and at the same time compelled to witness incredibly long acts of insufferable violence and pain. In all three cases, however, the still camera becomes a dramaturgical instrument of provocation used to focus the audience's attention, since as present-day cinematic viewers who typically experience accelerated temporal structures in our daily lives, we anxiously expect the camera to follow the action, either by zooming in or by changing its angles and perspective.

In absolute contrast, the dynamic shots provided by a hand-held camera in *The Blair Witch Project* incite uncanny feelings of dizziness and vertigo. Such an hyper-subjective cinematurgical strategy is capable of rendering the actual movements of someone filming under emotional stress, subject to constant changes of the focus of attention, suspended between falling and rising, balance and imbalance. In both static and dynamic shots, what we witness is a dialogical empathic process through which "the artist paints from a certain attitude or emotion and 'makes vivid' the emotion by an appropriate choice of correspondences" (Robinson 2005, p. 267), for spectators that do not merely perceive what is expressed, but also recreate the emotion expressed by the artist/s in their own embodied imagination.

6 Conclusion

Gallese and Guerra's embodied simulation thesis and perception model may be particularly productive for film theory and aesthetics, not only by contributing to how films are received by the spectator, but moreover to how filmmakers help shape our empathic embodied relationship with moving images through a dramaturgical and aesthetic perspective already built in their works, whether or not acknowledged by them.

Significantly, as Jane Stadler has recently noted, an emerging field of study that may be referred to as "neurocinematics," "neurofilmology," "psychocinematics," or "neurophenomenology," manages to combine classic cognitivist and phenomenological embodied cognition understandings of cinematic empathy. Although different, these two approaches concur that films provide access to both cognitive-imaginative and affective-experiential forms of empathy, and that "watching films may facilitate the development of embodied simulation and imaginative simulation in ways that augment empathic engagement" (2017, 325).

A study of the embodied simulation of gesture, motion, sensation, and emotion may be central to future knowledge on the relation between ethics and aesthetics. Just as neuroscience has provided proof of empathy through embodied simulation, both classic cognitivist and phenomenological embodied cognition studies have all the advantages of acknowledging and drawing upon film theory and cinematurgic studies, so as to better understand the human experience of art, by both makers and beholders, thereby complementing their theoretical and empirical understandings of aesthetics.

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