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Alfonsina Scarinzi *Editor*

Aesthetics and the Embodied Mind: Beyond Art Theory and the Cartesian Mind-Body Dichotomy

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Aesthetics and the Embodied Mind: Beyond Art Theory and the Cartesian Mind-Body Dichotomy

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Editor
Alfonsina Scarinzi
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Preface

> Because of its alleged noncognitive character, nothing connected with the aesthetic can have any role in meaning, conceptualization and reasoning! (Johnson 2007, 218)

In his work *The Meaning of the Body* Mark Johnson (2007) comments with these words on the reasons for the devaluation of aesthetics in mainstream Anglo-American analytical philosophy and philosophy of language, in which aesthetics is not considered to be part of meaning proper because the aesthetic dimension of experience and thought is neither conceptual nor propositional. Johnson points out that the influential aesthetic theory of Immanuel Kant has also contributed to relegating aesthetics to a secondary and devaluated status in philosophy and science. Kant adopts the mind-body dualism of Enlightenment faculty psychology, in which feeling as a bodily occurrence is contrasted with thought as an intellectual cognitive process. He reduces aesthetics to feeling alone considered to be nonconceptual and incapable of giving rise to knowledge.

Drawing upon John Dewey's pragmatist aesthetics and his "somatic naturalism," Johnson rejects the mind-body dualism in aesthetics. He claims that aesthetics is the study of everything that goes into the human capacity to make and experience the bodily pre-linguistic cognitive, emotional, and sensory-perceptual conditions of meaning constitution having its origins in the organic activities of living creatures and in their organism-environment transactions. It underlies linguistic meaning, which is parasitic on it.

Following Dewey, Johnson points out that the paradigmatic case of the pre-linguistic bodily conditions of meaning constitution is meaning-making in art. They culminate in aesthetic experience, which is not sharply marked off from other experiences. According to Dewey, an aesthetic experience is the integration of all the elements of ordinary experience that gives the experience a larger feeling of wholeness in the interactive flow of organism-environment transactions. The continuity of aesthetic experience with normal processes of living modifies and sharpens our perception and communication.

Grounding the aesthetic in the visceral processes of meaning constitution, Johnson points to the relation of continuity between mind and body, between the

higher and the lower, and hence to the relation between aesthetics and the embodied mind. This is the thesis according to which meaning is grounded in our bodily experiences and emerges from the nature of our brains, bodies, environment, social interactions, and practices. Our experience of meaning is based on our sensorimotor experience, our feelings, and our visceral connections to our world and on various imaginative capacities for using sensorimotor processes to understand abstract concepts.

The aim of this volume is twofold. On the one hand, it highlights the relation between aesthetics and the embodied mind thesis from a multidisciplinary point of view by taking into account philosophy of mind, American pragmatism, neuroscience, psychology of aesthetics, literary studies, and art. On the other hand, it contributes to reevaluating aesthetics in philosophy and science by presenting it as a field of inquiry of bodily mediated meaning-making in the interaction with the environment.

The introductory chapter to this volume consists in a general overview on the ongoing debate concerning the nature and kinds of meaning-making within cognitive science and related disciplines beyond the research interests of aesthetics. **Jessica Lindblom** integrates the theoretical framework of Distributed Cognition (DC) with more recent embodied approaches to social interaction and cognition playing a central role in the embodied and distributed process of meaning-making beyond aesthetics.

The first part of this volume with the title ***Embodied Aesthetics: The Anti-Cartesian Idea and Aesthetics of Life*** highlights the relation between aesthetics and the embodied mind from the point of view of American pragmatist philosophy, which can be considered to be the forerunner of the embodied mind thesis. **Mark Johnson, Jim Garrison, Thalia Trigoni, Tanya Jeffcoat,** and **Pentti Määttänen** discuss the anti-Cartesian view of aesthetics of life grounded in every aspect of human lives, in emotions, and in the pre-linguistic and visceral habits of human existence.

The second part with the title ***Neuroscience, Aesthetics and the Embodied Mind*** puts into focus the role of neuroscience in the relationship between aesthetics and the embodied mind. **Luca F. Ticini, Cosimo Urgesi, and Beatriz Calvo-Merino** refer to studies in cognitive neuroscience and investigate the human body as the object of aesthetic stimulation and as the subject of aesthetic experience. **Maria Brincker** highlights the role of a fruitful dialogue between neuroscience and philosophical investigations. She claims that neuroscience can be an incredible resource for aesthetics if indeed scientists take the dynamic, social, and environmental complexities of both aesthetic experience and brain function more seriously.

The third part of this work with the title ***Art Beyond Art Theory and the Cartesian Mind-Body Dichotomy*** highlights the embodied nature of the experience of art and of the interaction with visual and verbal works of art. **Mariselda Tessarolo, Kendall J. Eskine and Aaron Kozbelt, David Miall,** and **Tracie E. Costantino** discuss the role of the embodied mind, of embodied cognition and meaning in the judgment of, reflection on, and appreciation of works of art.

The fourth part with the title ***Radicalizing the Anti-Cartesian View: Towards Enactivism in Aesthetics*** stresses the relation between a more radical version of the embodied mind thesis called enactivism, which is traced back to the work *The Embodied Mind* by Varela, Thompson, and Rosch (1991), and aesthetics. **Daniel D. Hutto** and **Alfonsina Scarinzi** support a radical view of the embodied mind thesis that rejects the notion of mental representation or representationalism considered to be implausible in enactivism. **Ioannis Xenakis and Argyris Arnellos** present aesthetic experience as an evaluative process that influences the anticipation of stable and meaningful interactions with the environment. **Christian Tewes** puts into the foreground the scope and explanatory power of enactivism in the study of aesthetic experience from the point of view of neuroaesthetics.

The last part of this volume with the title ***Creating with and for the Embodied Mind*** outlines the role of bodily mediated interactions with works of art, digital media, and new technology in the 'embodied program' of reevaluating aesthetics. **John Haworth** presents his work on creativity, the creative artistic process based on the use of digital technology as a tool for art creation and the embodied mind. **Jennifer Hall** discusses an autopoietic model of interactivity and aesthetic generation. She focuses on the enactive notion of autopoiesis and its role in the interaction with art installations that involves how we relate to an artwork. **Sally McKay** focuses on embodiment in neuroaesthetics. In her chapter she conducts a neuroaesthetic investigation of the content of a video by Omer Fast.

Summing up, the present volume proposes a version of naturalism in aesthetics drawn from John Dewey's American pragmatism that sees human beings not only as embodied but as inseparable from the environment they interact with and provides a forum for authors from diverse disciplines to address specific scientific and philosophical issues within the anti-dualistic framework considering aesthetic experience as a process of meaning-making.

London, UK Alfonsina Scarinzi

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I would like to express my gratitude to Mark Johnson for accepting my invitation to contribute to this volume.

I am indebted to the serious commitment and enthusiastic engagement of the invited contributors who took an interest in my invitation beyond the limits of mere politeness. Many thanks to those who spontaneously answered my call for contributions published in 2011 and who are now part of this volume.

Last but not least, I would like to thank the two anonymous reviewers, who reviewed this work, for their useful comments.

London
30th March 2014

Alfonsina Scarinzi

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Part I
Introduction to a Non-classical View of Meaning-Making and Human Cognition

Chapter 1
Meaning-Making as a Socially Distributed and Embodied Practice

Jessica Lindblom

Abstract This chapter briefly contrasts the ongoing debate concerning the nature and kinds of meaning-making within cognitive science and related disciplines. Based on the shortcomings of traditional approaches of meaning-making activity it integrates the theoretical framework of Distributed Cognition (DC) with more recent, embodied approaches of social interaction and cognition. The focus is mostly on "radically" embodiment theories, but also clarifies different notions of embodiment and its role in cognition and social interaction. Integrating a broad range of theoretical perspectives and empirical evidence from mainly social neuroscience, phenomenology, embodied linguistics and gesture studies, four fundamental functions of the body in social interaction are identified. (1) The body as a social resonance mechanism, (2) the body as a means and end in communication and social interaction, (3) embodied action and gesture as a helping hand in shaping, expressing and sharing thoughts, and (4) the body as a representational device. The theoretical discussions are illustrated with an example from a case study of embodied social interaction "in the wild", with a focus on the importance of cross-modal interaction in the process of meaning-making activity. The DC perspective functions as an appropriate approach of illustrating how bodily interaction and meaning is enacted when embodied agents are co-operatively engaged in meaning-making activity. It is concluded that the body is of crucial importance in understanding social interaction and cognition in general, and in particular the relational and distributed nature of meaning-making activity in joint actions.

Keywords Distributed cognition • Embodiment theories • Bodily interaction and meaning • Embodied agents • Meaning-making activity

J. Lindblom (✉)
Interaction Lab (iLab), Informatics Research Centre (IRC),
University of Skövde, Skövde, Sweden
e-mail: jessica.lindblom@his.se

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Introduction

The ability to engage in meaning-making activity is a crucial building block of human culture, which is the foundation for the complexity of social life and cognition. However, there is an intense and ongoing debate concerning the nature and kinds of meaning-making within cognitive science and related disciplines. Research in mainstream cognitive science has since its inception in the mid-1950s mainly focused on studying individual's internal mental representations, in form of symbol manipulation inside the head. Cognition is viewed as information-processing of these more or less explicit internal symbolic representations of the external world, and nothing outside "the skull" is taken into account. This centralized and narrow view of what constitutes cognition, considers that the body only serves as some kind of input and output device, i.e. a physical interface between internal programs (cognitive processes) and external world (see critique by e.g. [3]). This view falls into the category which here is referred to *cognitivism*, which then is contrasted with *distributed* (e.g. [11, 12, 14]) and *embodied approaches* of cognition (e.g. [2, 4, 5, 15, 27]), which emphasize the way cognition is shaped by the embodied agent's interactions with the surrounding social and material world.

It should be pointed out, however, there are different views within embodied cognitive science regarding in what sense, or to what extent, cognition is to be considered as embodied (e.g. [28]). Clark [1], for instance, distinguishes between the positions of simple embodiment and radical embodiment. According to the former, the traditional foundation of cognitive science is preserved more or less intact, and embodiment is merely considered a constraint of the 'inner' organization and processing. The radical embodiment position, on the other hand, goes much further and treats the facts of embodiment as a fundamental shift in the explanation of cognition that is "profoundly altering the subject matter and theoretical framework of cognitive science" ([1], 348). This chapter is more in line with the latter view.

The old dichotomy between mind and body has in turn produced a disjunction between verbal and so-called nonverbal aspects of interaction. While dictionary definitions of the concept 'nonverbal' usually refer to the absence of words, this has unfortunately been interpreted synonymously with the absence of mind. On the contrary, Gallagher [4] emphasizes that bodily actions and movements are directly observable, in contrast to psychological entities, they offer a unique approach for studying cognitive processes. This means, there is no need to infer the content of human's perceptions, intentions, linguistic representations, and so on, from overt motor behaviors such as speech, gestures, facial expressions, or images of brain activity. Thus, this stance is highly compatible with the radically embodied approach of cognition. Although embodied cognitive science pays attention to both the socio-cultural embedding of cognitive processes and their bodily basis, theories of embodiment need to move beyond the present emphasis on the individual's interactions, to meaning-making interactions between agents and their social environment [19].

The theoretical framework of distributed cognition (DC) views cognition as a socio-cultural process, distributed in the complex socio-technical environment. DC offers a shift from studying individual cognizers to studying the whole functional system [11]. The DC approach can be complemented with recent finding in embodied cognitive science in explaining meaning-making activity. The emphasis in DC is, however, more on the socio-relational side rather than on the embodied side of the interactivist coin. For instance, despite the emphasis on interactions between agents and their social surroundings, the DC framework offers little on the embodied nature of human cognition, and is currently peculiarly 'disembodied'. Indeed, by intertwining the DC perspective with the 'radical' view of embodiment, an appropriate approach of illustrating how bodily interaction is enacted when embodied agents are co-operatively engaged in meaning-making activity emerges.

It should be noted, however, that there exists a body of work (for an overview, see [26]), in which the concepts "embodied actions" and "situated human interaction" has been used for many years. For instance, Goodwin [7, 8] considers carefully the relevant visibility of the body, such as a dynamically locus for the production and display of semiotic meaning within human social interaction. However, being an anthropological linguist, he offers almost no detailed ideas about the underlying embodiment effects in social interaction. As in the case with Hutchins' DC approach, Goodwin's work is complementary to my work, but differs in the interpretation and description of the body.

This chapter aims to describe and illustrate how our everyday abilities for meaning-making engagement and interaction are grounded in socially distributed and embodied actions, functioning as a basis for intersubjectivity and meaning-making in joint activities, in a mutually shared environment.

Background

The Theoretical Framework of Distributed Cognition

The distributed cognition approach (DC), proposed by Hutchins in his book Cognition in the Wild [11], considers how to understand the complex organization of socio-technical systems, in which the object of study is the way cognition is distributed between people, and the tools they employ. The main focus is on the ways information is distributed, propagated and transformed through the different media at a system level. Fundamental of the DC approach is the view that cognition is seen as a culturally situated activity, and should be studied where it naturally occurs, i.e., "in the wild". The DC approach resides on two theoretical assumptions. Firstly, the unit of analysis for cognition is characterized as a functional system as well as the relationships between the different components (i.e., people in the material and social world) of the cognitive system. The functional system has cognitive properties

that cannot be reduced to the individual. Hutchins [11, 12] argues that cognitive science made an error when it mistook the properties of a person in interaction with the social and material world for the cognitive properties that resides inside the person. Instead, cognition is viewed as creation, transformation, and propagation of representational states within a socio-technical system [11]. Secondly, the range of processes that is considered to be cognitive in nature is expanding beyond "the skull". Following the DC approach, cognitive processes are seen as interactions between internal and external processes, and manipulation of external objects and the propagation of representations across the system's components. The relationship between the external and the internal constructs cultural meaning, and are a part of the same cognitive "world". Although Hutchins' theoretical framework uses the traditional notion of computationalism, it is modified in order to be applicable to the whole socio-technical system as the unit of analysis rather than the single individual's mind.[1] Consequently, taking the whole system as the unit of analysis makes it possible to observe the different kinds of representations, visible or invisible, which are fundamental parts in the socio-technical system. As Johnson [14] (167) writes,

> …in this view, cognition is expanded from an individual enterprise to a distributed activity that involves a variety of socio-cultural elements, including the behavior of multiple individuals, their use of objects, and their shared histories. In such a model, the unit of analysis is typically not mental structures in individual minds, but "real-time" interactions between the various participants and their environments … communication, itself, is a 'cognitive' process.

This means, contrary to viewing cognition as internal processes, the social interactions and materials comprising such systems are considered to be directly observable cognitive events. With this crucial change in perspective, much of cognition previously hidden 'inside' the skull has now become apparent. Therefore, DC offers tentative suggestions how to methodologically study meaning-making activity and cognition. Johnson [14] points out that adopting the stance that cognition is best studied as an observable and distributed event rather than an invisible, mental one, does not prevent us from recognizing the role of mental representations. Hence, Johnson emphasizes that the DC approach is 'made-to-order' for studying this process, because it regards cognition as being created through interaction and manifested in the observable dynamics of the group. Thus, as she explains, the agents' together form a single unit creating meaning together – a unit that in sum is more than its parts. Johnson points out while the DC approach presents its own methodological challenges, there is one major advantage in making this methodological and conceptual shift. In the DC approach all observational descriptions are situated in context, and by mapping internal representations to the behavioral outcome in order to study the ongoing participation of co-regulated interactions, allows researchers to side-step some of the difficulties that arise in justifying inferences to unobservable mental events and representations [14].

[1] The issue whether DC should be considered as computationalism or not, is not the major focus in this chapter. However, Hutchins [11] does not claim that computationalism explains the cognitive processes of the individual mind. The interesting point here is the framework's system level of analysis, and the implications for studying social interaction and cognition from such a perspective.

To conclude, According to the DC approach, cognition is a relational process in which meaning and intentions are emergent products of social interaction, and in most situations they can be viewed as a kind of distributed phenomenon rather than as individual private mental acts. In other words, we should not consider meaning to be 'in there' but instead 'constructed' between people and their surroundings. The DC emphasis is, however, on the socio-relational side rather than on the embodied side of the interactivist coin. For instance, despite the emphasis on interactions between agents and their social surroundings, the DC framework offers little on the embodied nature of human cognition, and is currently peculiarly 'disembodied', a fact Hutchins [12] admits himself. As he writes,

> For the most part, the cognitive processes described in Cognition in the Wild… are presented without reference to the role of the body in thinking. That is, in spite of the fact that distributed cognition claims that the interaction of people with things is a central phenomenon of cognition, the approach has remained oddly disembodied.

The next section elaborates in some more detail on these objections, particularly regarding in what sense humans can be considered as embodied cognizers situated in a social and material context, and why that might be crucial for meaning-making activity and cognition.

Embodiment as the Basis for Meaning-Making Activity

Many recent findings in cognitive science and related disciplines indicate that the body has several important roles in meaning-making activity. Here, I briefly address different perspectives and empirical findings, ranging from disciplines such as social neuroscience, phenomenology and linguistics to gesture. These findings are then generalized to four fundamental functions of the body in social interaction, and consequently in meaning-making activity [17, 18, 20].

Social Neuroscience and Phenomenology

Recent findings in social neuroscience provide strong evidence for an embodied interpretation of cognition. For instance, work on mirror-neurons and embodied simulations are good examples of more 'radically' embodied views.

In short, the embodied account may rely on a resonance mechanism, being part of special kinds of visuo-motor neurons in the premotor cortex in the macaque monkey brain, so-called mirror neurons, which exemplify how perception, action, and social cognition, might come together at the level of single neurons. Mirror neurons are located in area F5 in the monkey brain and become activated both when performing specific goal-directed hand (and mouth) movements and when observing or hearing about the same actions. Because mirror neurons respond in both

conditions, it has been argued that the mirror system functions as a kind of action representation, linking 'action' and 'action-perception' (e.g. [23]). Consequently, this mirroring mechanism enables the agent to understand the meaning of the observed action by embodied reactivation. This means, even while only observing the actions of another individual, a neural 'triggering' event in fact takes place in the observer. Accordingly, the linking between action and perception offers an 'intuitive' understanding of the observed action, i.e., what it means to do it and what the action really is about. It has been speculated that the mirror system might be a basic mechanism necessary for imitation and attributing mental states to others (e.g. [13, 16]). This means, the ability to infer the forthcoming new goal is already 'there' in the mirror neuron system and explaining activity by two different mechanisms is both unnecessary and biologically implausible. In other words, the cognitive processes that are achieved by the reactivation of the same neural structures used for physically sensing, moving and acting in the environment, is also used in meaning-making activity in social interaction. This implies that during the course of ontogeny, the mirror neuron system and the reactivation processes might develop further, through maturation as well as social interaction, to more advanced forms.

It should be noted, however, that this 'radical' view should not be misinterpreted as claiming there is a direct correlation between 'objective' neurological states in the brain and 'subjective' phenomenological experience, which might be the impression at first glance. On the contrary, as pointed out by Gallagher [4], bridging the troubled water of social cognitive neuroscience and phenomenology through a direct mapping is no viable approach, because "there is no short cut that can bypass the effects of embodiment" (244). The major problem is the traditional assumption that interaction between two people is a process that takes place between two separated 'Cartesian minds' [4]. In contrast, he argues that communicative interaction is accomplished in the very action of pragmatic embodied interaction, through the expressive movement of speech, gesture, and the environmental and contextual factors of interaction itself. Therefore, he challenges the idea that the understanding of another person involves an attempt to theorize an unseen belief or simulate in mind-reading. Instead, he proposes that only when our evaluative attempts to understand others break down do we choose to use more specialized practices, i.e., simulation which is mostly carried out offline. This means, embodied simulation processes can function as offline representations, which presumably is accomplished through the "sharing" of neural mechanisms between sensorimotor processes and higher-level processes, given that something must be "standing-in-for" the issue not present at hand. However, Gallagher [4] suggests that humans seldom need to move beyond the present embodied and expressive actions at hand in order to grasp and gain an understanding of the other person. Consequently, the need of an internal model is questioned, and as Gallagher [4] (224) explains, "[t]he required model is the action of the other, and it is already being perceived. Why would one need to 'read off' the meaning of an action on an internal 'as if' model, indirectly, when one is observing that very action performed by the other?". Thus, Gallagher's major point is that phenomenologically, when one sees another person's action or gesture, one directly perceives or immediately 'sees' the meaning in the action/gesture, without the need to 'theorize' it.

In line with this remark, recent empirical findings show when humans interact, affective information is transmitted between their brains, supporting the relational view of meaning-making activity [25]. They investigated the flow of affective data between senders' and perceivers' brains engaged in ongoing facial communication. They found that the neural activity in the perceiver's brain could be successfully predicted from the neural activity in the sender's brain, depending on the affective information that was communicated. Their findings offer direct evidence that during ongoing facial communication, a 'shared' space is continuously built up between the interacting brains. This means, one's own body is already communicating with the other's body at unconscious and perceptual levels that are sufficient for meaning-making to emerge. All in all, the consideration of the mirror neuron system and embodied practices as the neurobiological underpinning of social interaction and cognition provides significant examples of more 'radically' embodied views of meaning-making activity.

Embodied Linguistics and Gesture

Mirror neurons are also considered to be involved in more complex social actions, such as gesture and language. Rizzolatti and Arbib [24], for instance, suggest that the human communicative and linguistic capacity is a natural extension of action-recognition based on mirror neuron mechanisms. This could provide a tentative explanation of why and how the human Broca's area, involved in gesture and language processes, emerged from area F5 in the monkey brain. As Rizzolatti [23] points out, however, it is obvious that the mirror neuron mechanism itself is unable to explain the whole complexity of speech and human language, but it actually clarifies one of the fundamental aspects of intersubjectivity, namely how the interacting partners are able to share the communicated meaning of a dialogue. In other words, the epistemological divide (i.e., verbal versus non-verbal interaction) in linguistics may be bridged from an embodied perspective. Several researchers demonstrate converging empirical evidence which suggests that the systems of hand and mouth movements are not two separate systems. Rather, they should be viewed as an integrated communicative "speech-language-gesture" system. McNeill [21] (245), for example, proposed that speech and gesture form a single system of communication, grounded in a common underlying thought process. emphasizing that "[g]estures do not just reflect thought but have an impact on thought. Gestures, together with language, help constitute thought". Despite the close connection between gesture and speech in language, they generally differ in how they carry meaning (e.g. [4, 6, 21]). Gestures offer alternative ways of expressing ideas that are hard to articulate in speech, as well as when there is no proper word at hand for the actual meaning to be conveyed. Besides, gestures are able to present different pieces of information simultaneously, which in speech would need to be expressed sequentially [6]. When the same information is conveyed in the speaker's speech and gesture, a speech-gesture match is generated. In addition, Goldin-Meadow [6] also discovered that speech and gesture convey different information, but not necessarily conflicting meaning.

For instance, she noticed that gestures can indicate a correct understanding of an issue, although an erroneous verbal explanation of the task is uttered. Hence, humans can generate a gesture-speech mismatch. This means, in a mismatch, the speaker's speech and gesture convey different information, and the 'extra' ideas found in mismatches are only conveyed in gesture. Hence, gesture reflects thoughts that cannot yet be articulated in speech. Humans can effortlessly take advantage of the meaning conveyed in gesture, being able to read gesture 'on the fly'. Moreover, the information noticed from gestures by listeners can instead be expressed in speech, i.e., not necessarily being 'tagged' in gesture. This means, the expressed information, in either speech or gesture, can switch modality when the information is re-expressed [6]. However, Goodwin [9] coined the concept of symbiotic gesture. In contrast to the above classifications of gestures, it refers not only to the particular movements of the individual's gesture and speech in isolation, but also considers the contextual surrounding in which the action is carried out. Hence, 'symbiotic gesture' includes environmental aspects that capture additional meaning of the situation.

Furthermore, it is argued that gestures also have representational properties, and Goldin-Meadow [6], for instance, emphasizes that the gestures accompanying speech are symbolic acts that convey meaning. As she points out, it is easy to overlook the symbolic nature of gesture since its encoding is usually iconic, i.e., a gesture simply appears such as what it represents. For instance, a twisting hand movement reminds you of the action used to open a jar, but it should be noted that the twisting action is neither equal to the actual act of twisting nor does it mean the word "open". Similarly, Gallagher [4] emphasizes the fundamental difference between instrumental acts (e.g., opening a jar or reaching out to pick up a glass), and the generation of a gesture signifying the very action of opening a jar or picking up the glass. In other words, the act of gesture achieves an entirely different function than the actual grasping or opening, because those actions have representational content, which is a cognitive and possibly a communicative function that requires the generation and expression of meaning [4]. According to him, gesturing may for just that particular reason, differ significantly in its mechanism in comparison to the instrumental action, since the meaning and the communicative situation calls forth the cognitive and linguistic nature of gesture.

As pointed out by McNeill [22], a crucial shift in the function of mirror neurons occurred when they began to respond to significances other than the actions themselves, as a way of co-opting regions 44 and 45 in Broca's area, providing the basis for recognizing the actions of others. This co-opted system seems to be part of a circuit for recognizing intentional goal-directed actions from one's own actions or from others. Hence, meaningfulness emerges from the ability to activate a social reaction of another in yourself, a way of reacting in your own actions similarly to the actions of others, which McNeill denotes Mead's loop. Furthermore, the mirror neurons system functions as the mechanism for this loop, and it provides a plausible explanation to why gesturing is used so frequently in human social interaction. Gesture also has the important role of activating our own mirror neuron system, as well as offering oneself the ability to take the perspective of the other simultaneously

[24]. This means, the consequences of linking specific regions in Broca's area is the generation of action sequences with meanings other than the meaning of the action itself. Hence, Mead's loop creates a connection of gesture to discourse, given that this relational characteristic is also present in speech. This implies that bodily actions might be of crucial importance in the process of meaning-making activity. Thus, from a radically embodied perspective, the activation and/or reactivation of the mirror neuron system, together with other bodily mechanisms, might function as the glue that binds hand, mouth and language together, in a social and cultural sphere.

Four Fundamental Functions of the Body in Social Interaction

In summary, the work presented in the previous sections offers highly complementary rather than alternative views on the role of embodiment in meaning-making activity. By integrating these perspectives, we can obtain a deeper understanding of the issue without bypassing the effects of embodiment. Based on the previous discussions and empirical findings, four fundamental functions of embodiment in social interaction can be identified (for more details, see [18]).

- The body functions as a social resonance mechanism.
- The body functions as a means and end in communication and social interaction.
- Bodily actions and gestures function as a helping hand in shaping, expressing and sharing thoughts.
- The body functions as a representational device.

The body functions as a social resonance mechanism suggest that there is no need to decode or represent embodied social stimuli to more 'advanced' or cognitive states since the bodily states in themselves actually are cognitive states, as related work shows. Hence, this first function portrays how cognitive and bodily states of the interacting partners are reflected in both in themselves and in-between them.

The body functions as a means and end in communication and social interaction. The suggested linkage between 'action' and 'action-perception' provided by the mirror neuron system implies that the body and its sensorimotor processes are 'cognitive' in themselves. The great benefit of this action-understanding linkage, beside its parsimony, is the inbuilt dual ability of grasping both the 'what' and 'why' aspects of the present action, i.e., what the action is about as well as catching the intention behind the movement. Hence, this second function stresses how bodily actions operate both outwardly and inwardly in meaning-making activity, e.g., through Mead's loop.

Bodily actions and gestures function as a helping hand in shaping, expressing and sharing thoughts. Besides speech, gesture is a significant (embodied) aspect of meaning-making activity, which can provide important information to the listener, since gestures offer speakers the means of expressing thoughts difficult to

articulate in speech. Through gesturing, we are able to generate and embody dynamical associations between different matters, which can offer new insights to the present situation or problem at hand. In addition, gesture sometimes serves as an explicit instance of the action-meaning embodied in speech, suggesting that hand movements are physical externalizations of the speaker's ideas.

The body functions as a representational device. In addition to speech, there is the more controversial claim that non-vocal embodied action also has representational properties, where certain kinds of gesture, portraying representational aspects, are the most obvious examples of the body as an external representational device. The neurological roots of this ability might be the activity of the mirror neurons, since they might propose a kind of 'action representations' that are directly enacted in social interaction. Furthermore, since mirror neurons seem to 'understand' the goal of the action, it can be argued that the grasping of the action does not require a declarative understanding, since it is meaningful in itself.

Analysis and Discussion

As we have seen in the previous section, human meaning-making activity is first and foremost the experience of interactive embodied practices, which unfolds "in the wild" through the distribution of information between people in their socio-technical system. To illustrate how meaning-making activity emerges from bodily mediated and socially distributed actions, digitized images from a video recording made during an archaeological excavation of an old burial ground in Varnhem (Västergötland, Sweden) are presented and analyzed frame-by-frame. The burial ground is situated on the hill behind the Varnhem abbey and the ruins of an old monastery. Due to space limitations here I only present the analysis of a short episode,[2] in which two archeologists (Maria and Catarina) cooperatively interact. Their major task is to identify the remains of an infant skeleton, and then document the skeleton's location in the recording sheet.

Meaning-Making as a Socially Distributed Joint Activity

The episode begins with Catarina asking Maria for advice. Catarina is currently hand-cleaning a portion of the exposed burial area, and wishes to discuss some of the skeleton remains she has not been able to interpret properly. The exposed area contains several remains of people that were buried in the ground over the years, and an initial step is to figure out which of the skeleton remains belong together. In this particular case, Catarina has encountered remains from an infant, which further complicates the task. For one, infants' skeleton bones are very tiny and

[2] All quotes are translated from Swedish by the author.

Fig. 1.1 Maria (to the *left*) and Catarina (to the *right*) are discussing the remains of an infant skeleton

fragile and therefore hard to distinguish. For another, infant skeletons differ from adult skeletons by the number of bones (infants are born with more bones than adults), and in having more cartilage (cartilage rots faster than bones). Given these facts, further complexity is added to the present interpretation. A few bones are well preserved and properly identified (e.g. sternum), but on the whole, the process is very similar to solving a jigsaw puzzle, only without having access to all the pieces.

Catarina utters "*Thanks for coming…I have found something…this is a fragment of an arm… but the other bone fragment…I don't know*" while she is simultaneously gesturing above the ground and pointing at bone fragments that she had found thus far (Fig. 1.1). The embodied actions are coordinated given that *gesture-speech matches* are used to highlight aspects and to guide one's own and the other person's attention. These gesture-speech matches provide hints on how to identify meaningful segments of a complex sequence of embodied actions. Both women also use their bodily orientations and postures (constructed within the constraints of the skeleton in the ground) to demonstrate shared attention and interest. The relations between these two women are characterized by complexly organized embodied interactions and an intersubjectively shared understanding of the task's nature.

In the next video sequence, Maria follows Catarina's actions with her gaze and continues the sentence by saying "*it may appear…when we remove more soil…it [the arm as a whole] is probably laid outside*" and she simultaneously starts gesturing with her right arm as a way of signifying the bone fragment as being a part of the upper arm in a rapid but distinct gesture, in order to represent the actual arm part, which is followed by a signifying "digging/hoing" gesture with her lower arm and hand (Fig. 1.2, image to the left).

Fig. 1.2 The image to the *left* depicts Maria's signifying "digging/hoing" gesture with her lower arm and hand. The image to the *right* depicts how Maria uses her whole body to represent the posture of the buried infant

Catarina still does not grasp completely how to interpret what is in front of her, and utters "*it was actually something I thought of…did they use to do something like that?*", and Maria continues "*it appears to have been put on its side*". During the latter part of the dialogue, Maria uses her whole body as a representational device for representing the overall posture of the buried infant in the ground as well as its location (Fig. 1.2, the image to the right). It should be pointed out that Catarina immediately grasps the meaning of Maria's enactment merely by looking at her out of the corner of her eye. Hence, the crucial point is when Maria uses her own body as a representational device to illustrate how the skeleton was placed on its side. In this particular moment, both women simultaneously grasp and share their insights without even looking directly at each other. The meaning-making activity emerges from jointly enacted embodied interactions, and the mutual sharing of the experience is pivotal here. This is most clearly an example of what I denote a socially and environmentally distributed mismatch since the speech-gesture mismatch does not occur in a single individual, as described in [6], but is instead socially distributed between Maria and Catarina. Moreover, the understanding relies on situated and embodied cultural practices for seeing and interacting in the environment, which in this particular case is an archeological excavation. To enact this meaning-making activity in a joint action, both Maria and Catarina have to accurately understand and grasp the nature of the task they both are enacted in. The ability of agents to 'on a fly' both grasp what they are doing as well as what the other is doing, during a temporal horizon, are crucial to this joint meaning-making process (in which embodied social resonance mechanisms are involved). It should be pointed out, as a non-professional archeologist, I failed to fully interpret the remains of the skeleton in the ground, although I was shown afterwards the remains by Maria (see Goodwin's work on professional vision [7]).

Maria and Catarina use the actions of their own bodies in coordination with the infant's incomplete skeleton to enact the posture and position of the infant that cannot be seen or sensed explicitly. These embodied actions are the means and end in

which the archeologists reason about the fact how the infant is buried, but beside the phenomenologically embodied practice [4] of reading off the actions 'on the fly' they have to imagine the skeleton parts that are not present or visible. Their imagination thus has to involve prior professional knowledge as archeologists, and in order to enact their meaning-making, they have to coordinate online and offline embodied practices. There is no sharp line between so-called online versus offline cognition, given that both processes are running in parallel. Clark [2] argues that humans create and use human-built structures in order to transform the space of higher-level cognition, and stresses that "we actively create restricted artificial environments that allow us to deploy basic perception-action-reason routines in the absence of their proper objects" (233). According to Clark, these strategies allow human cognition to be disengaged while at the same time offering a concrete place in which to organize action-perception couplings of an essentially real world-like kind of interaction. The cognitive strategy of off-loading the act of understanding into a visual and external representational format through embodied actions becomes quite apparent and observable in the episode described above. In other words, Maria's enactment of the body as a representational device here functions as an off-loaded act of remembering and understanding. Thus, the very action and experience of Maria's molding of her whole body brings forth the correct posture of the buried infant, and fits precisely with the buried infant's actual position and posture in the ground. Using these means and others, the archeologists jointly figure out how the infant was buried.

Document the Skeleton's Location in the Recording Sheet

Right after the jointly distributed meaning-making moment occurred, Maria points at several positions in the ground, and Catarina understands the supplementary details of the skeletons overall posture and position accurately. In the following, Catarina has to complete the excavation of the skeleton, according to work practices in archeology. This involves determining the skeleton's horizontal and vertical locations in three dimensions. Moreover, its relationship with nearby objects and features, has to be documented in the recording sheet for later analysis. They discuss in what order to precede the hand-cleaning of the exposed burial area. Throughout the joint discussion about how she should do the task, Catarina gestures frequently (see Fig. 1.3).

As illustrated in Fig. 1.3, Catarina uses several embodied gestures which are sometimes accompanied by speech. She molds her hands into an imaginary small "pit" by starting with her hands apart in front of her and then downwardly brings them together into close contact (Fig. 1.3, image to the top left). This signifying act carries information about the actual depth of the forthcoming soil removal and it is only enacted in gesture. She then continues discussing certain aspects in the ground with Maria and highlights some of them with a tapping, sometimes

Fig. 1.3 Maria and Catarina enact several integrated embodied actions and gestures while they discuss the upcoming hand-cleaning of the exposed burial area

ground-touching gesture to consider these aspects more carefully (Fig. 1.3, image to the top right). At several occasions, she uses her knife as a probe which allows her to pay closer attention to different soil layers (Fig. 1.3, image to the bottom left). After going through the forthcoming steps, Catarina utters "*I've got to hand-clean some more … and then do it all over again*". She signifies the direction of the imaginary second round by a half-circular shape in front of her with her left hand; the gesture starts close to her forehead, is then moved outwards and finally comes to a rest close to her stomach (Fig. 1.3, image to the bottom right). It should be noted that her understanding of the forthcoming steps is augmented by gestures made in close coordination with the actual structure of the remains in the ground. Making contact with the ground while gesturing integrates tactile dimension into the embodied experience and understanding. That is, the two most important aspects of the utterances, the order and the direction are manifested in speech as well as gesture simultaneously. Thus, bodily actions and gestures function as a helping hand in shaping, expressing and sharing thoughts. The touching of the ground is represented in an embodied felt experience. This is similar to what Hirose [10] denotes the act of embodying. When she used the knife to investigate the ground, it ceased to be an added tool and instead became part of the body for

Fig. 1.4 Maria and Catarina simultaneously pointing at the same place in order to identify the reference point

the accustomed archeologist, which indicates that the bounds of the body can be extended beyond the skin. As Hirose [10] pointed out, an "external object can be regarded as a part of the perceptual system" (p. 291). Finally, Maria and Catarina have to decide the proper reference point for the final documentation of the skeleton in the recording sheet. They both rise and while Catarina utters "*it's probably positioned at the same level as….you had earlier*", they are pointing simultaneously at the same place (Fig. 1.4). All in all, the only stored static representation in the video sequence briefly described here is the documentation in the recording sheet.

This type of socially distributed planning functions as a way of being in dialogue with oneself as well as with others, and might be accomplished by the activation of their own mirror neuron system through Mead's loop. This means, most of the imaginary steps and actions in the planning involve intra-personal interaction but there is also an inter-personal theme present. Hence, the embodied actions function both intra- and inter-communicative, stressing the relational aspect of social interaction and cognition that is profoundly manifested in our embodiment. Thus, the embodied nature of meaning-making and cognition unifies the individual and social perspectives. Gesture and language are displayed differently but their relational characteristics are the same – they are both external actions that we can act upon in the social and material environment, and internal embodied action used to organize and structure our internal and sometimes abstract and decoupled thinking, though still grounded in embodied experience.

Conclusions

The aim of this chapter has been to describe and illustrate how joint meaning-making is a complex, distributed and coordinated dynamical process that usually encompasses a range of socially embodied experience and actions such as gesture, speech, body posture and orientation, the activation of neural resonance systems, and culturally situated practices for being in and interacting with the world.

What ties all these issues together is the idea of the social mind as being distributed, relational and 'radically' embodied, in the social sphere. That is, the socio-cultural dimension meets the physiological dimension, reaping the best of both worlds without neglecting the effects of embodiment for social interaction. What further unites all these issues is how profoundly embodiment shapes social interaction and cognition through unfolding socially embodied actions in social and cultural contexts. As stated in this chapter, the key to this coherent union is the way our social mind is embodied, a fact that should not be neglected or trivialized. Based on the previous discussions and empirical findings, the following claims could be made:

- Cognition and social interaction are sometimes the very same process.
- Humans are able to swap seamlessly between internal and external representations of embodied actions, since the "model" often is 'out there'.
- Joint actions emerge through the actions taken by all the interacting participants together, by addressing how they monitor, reflect, acknowledge and interpret the embodied actions that are enacted in a social and material context.
- Individuals' embodied interactions with each other and the material and social environment form a single unit creating meaning together.
- Socially distributed embodied actions do not simply serve to express our internal cognitive processes, but are themselves part and parcel of cognition.

To conclude, the ways humans are embodied imply that one's own understanding of social interaction is more than the exchange of communication signals between disembodied information-processors. Instead, meaning and intentions are emergent products of socially embodied interaction, and in many situations they can be viewed as a kind of visible distributed phenomenon rather than as individual private mental acts.

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Part II
Embodied Aesthetics: The Anti-Cartesian View and Aesthetics of Life

Chapter 2
The Aesthetics of Embodied Life

Mark Johnson

Abstract At least since the Enlightenment, aesthetics has suffered from what Gadamer calls a "subjectivism" that relegates aesthetics to a theory of judgments based on feeling, where feelings are regarded as non-cognitive, non-rational, and private. I argue, to the contrary, that aesthetics lies at the heart of our capacity for meaningful experience. Aesthetics concerns the patterns, images, feelings, qualities, and emotions by which meaning is possible for us in every aspect of our lives. Empirical research from cognitive science reinforces this picture of the pervasiveness of aesthetic conditions that emerge from the nature of our bodies, our brains, and the structured environments we inhabit. Following Dewey, I then suggest that the arts constitute exemplary achievements of human meaning-making, which is a process that draws on all of the aesthetic dimensions that make up our mundane experience. Consequently, in any adequate account of mind, thought, language, or values, aesthetics moves from the periphery to center stage as the key to our capacity for meaning, imagination, and creativity.

Keywords Aesthetics and human meaning • Anti-Kantian aesthetics • Embodied mind thesis • Image schemas • Body-based meaning

Human beings are animals – highly complex, inescapably embodied, intrinsically social, and sometimes even intelligent, animals – who live, move, and have their being via their ongoing relations with their environments. As such, we have a deep visceral, emotional, and qualitative relation to our world. Everything we can think, feel, and do stems from our corporeal entanglements with our world that provide the basis for all our meaning-making and reflective activity. This – our visceral engagement with meaning – is the proper purview of aesthetics. As a consequence of our embodied nature, meaning comes to us via patterns, images, concepts, qualities, emotions, and feelings that constitute our perception of, and action in, the world. Traditional aesthetics has focused almost exclusively on theoretical explanations of aesthetic judgment, beauty, and art. I contend that these foci of mainstream

M. Johnson (✉)
Philosophy Department, University of Oregon, Eugene, OR, USA
e-mail: markj@uoregon.edu

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aesthetics should be seen as exemplary, intensified instances of the basic aesthetic contours and processes of human meaning-making. In other words, aesthetics is not merely a matter of aesthetic experience and art, but extends further to encompass all of the processes by which we enact meaning through perception, feeling, imagination, and bodily movement. In this essay, I hope to make a strong case for expanding the scope of aesthetics to recognize the central role of body-based meaning, with the arts then regarded as instances of particularly deep and rich enactments of meaning. In short, I will argue for the centrality of aesthetics in the very possibility of human meaning and fulfilled experience. However, in order to make this case, we must first retrieve aesthetics from the philosophical dustbin into which it was discarded as a result of Enlightenment views about the subjective character of aesthetic experience.

The Subjectivising of Aesthetics

If aesthetics is fundamentally about how we are able to have meaningful experience, then one might wonder why this has not seemed evident to aestheticians and philosophers of art. Why is it that people tend to think of aesthetics as exclusively concerned with art and so-called "aesthetic experience"? The answer is pretty obvious, namely, that the philosophical field known as "aesthetic theory" emerged in the eighteenth century based on an inherited Enlightenment view of mind, thought, and judgment that regards aesthetics as merely a matter of feelings, as subjective, and therefore as outside the domain of knowledge judgments. The story of how art and aesthetic experience came to be devalued in this manner runs roughly as follows:

1. Human mind was thought to consist of a set of independent faculties or powers of judgment (e.g., sensation, feeling, emotion, imagination, understanding, reason, will). Everything the mind does is thus supposedly the consequence of how various of these mental faculties interact to produce particular kinds of mental states and judgments.
2. Aesthetic judgments were distinguished as those based entirely on feelings, in sharp contrast with cognitive (knowledge) judgments, which are allegedly based on concepts.
3. Feelings were taken to be private, non-cognitive bodily perturbations.
4. As non-cognitive (i.e., non-conceptual), they were not seen as contributing either to human meaning or to our understanding of, reasoning about, or knowledge of, our world.
5. Because philosophy had come to be narrowly defined as an epistemological project concerned with the nature, possibility, and limits of human knowledge, there was no serious place within philosophy for any aesthetics, other than as an analysis of types of human feeling states and judgments.

The view I have just summarized found eloquent and exquisitely detailed articulation in Immanuel Kant's highly influential theory of aesthetic judgment. However, despite all of his esoteric twists and turns of transcendental argument, Kant never

succeeded in adequately rescuing aesthetics from the status of the merely subjective [14]. In his Critique of Pure Reason (1781) Kant held that knowledge judgments can be objective and universally shareable (i.e., communicable), precisely because they are based on concepts. In the Critique of Practical Reason (1787) Kant makes it equally clear that the universal validity of moral judgments must also rest on concepts – this time, concepts derived from pure practical reason – and he insists that moral principles could never be grounded on feelings. When he turns to aesthetic judgments, in his Critique of Judgment [19], he argues that a judgment about beauty in nature and art involves a subjective feeling of pleasure evoked by the formal qualities of an object, and so cannot be validated conceptually or rationally. In other words, there can be no rules for the making or judging of beauty. When Kant began his Third Critique with the claim that "a judgment of taste is not a cognitive judgment and so is not a logical judgment but an aesthetic one, by which we mean a judgment whose determining basis cannot be other than subjective" ([19], 203), the fateful die was cast. Aesthetics came to be narrowly defined as an inquiry into the nature and limits of judgments of taste (i.e., judgments of beauty in nature and art), which were allegedly based on subjective feelings, even though they laid claim to universal validity. Because Kant took feelings, as subjective, to be relative to the individual bodies experiencing those feelings, he therefore could not use feelings to ground the alleged universal validity of the judgment. This places the judgment of taste in a most awkward position: on the one hand, it appears to be based on feeling (and not on concepts), while, on the other hand, it nevertheless claims universal validity. Kant infamously tried to resolve this deep tension by arguing that aesthetic judgments of taste were not, in fact, grounded on feelings, but instead were based on a unique type of concept (an "indeterminate concept of the supersensible substrate of nature"). The feelings involved in aesthetic experience and judgment are thus taken to be secondary, that is, they are not the ground or cause of the judgment, but merely our felt consciousness of the harmony of the cognitive faculties (i.e., imagination and understanding) that is the basis for the judgment.[1]

Kant never relinquished his conviction that only shared concepts could ground the universal validity of a judgment, so he ends up pulling a philosophical fast one by conjuring up an "indeterminate concept" to ground the judgment of taste. However, this attempt to intellectualize judgments of taste cannot save them from subjectivity.[2] Kant's rigid faculty psychology and his unbridgeable dichotomies between feeling and thought, concept and percept, emotion and reason, imagination and knowledge, made it impossible for him to salvage any significant role for aesthetics in the cultivation of a meaningful and moral human life. My point here is not

[1] In the infamous section nine of the Critique of Judgment Kant says, "this subjective universal communicability can be nothing but [that of] the mental state in which we are when imagination and understanding are in free play," and "this merely subjective (aesthetic) judging of the object, or of the presentation by which it is given, precedes the pleasure in the object and is the basis of this pleasure, [a pleasure] in the harmony of the cognitive powers" ([19], 217–218).

[2] Indeed, Kant insists that judgments of taste have a "universal subjective validity", in contrast to knowledge judgments that have "universal objective validity" that is based on shared concepts ([19], 62).

to enter into debate about the proper interpretation of Kant's aesthetic theory. Rather, I simply want to observe that Kant's legacy in the philosophy of art and aesthetic judgment is what Hans Georg Gadamer calls "the subjectivisation of aesthetics in the Kantian critique" ([14], 39), for, after Kant, the problem of aesthetic judgment comes to be framed as how a judgment that is "merely subjective" – as based on feelings – can lay claim to universal validity.

Although Kant is not entirely to blame for this, one fateful consequence of his insistence on what he called the "disinterestedness" of aesthetic judgments has been the mistaken idea that a full and pure appreciation of the formal characteristics of an aesthetic object requires us to suspend any practical or life engagement we might normally have with the object, so that we can focus only on the formal features that make possible a universally valid judgment.[3] Kant, of course, does not say that we cannot also have a practical interest in the object of our aesthetic appreciation, but only that we must never allow any relation of the object to our interests, life emotions, or vital ends to be the basis of a pure judgment of taste.

Unfortunately, many subsequent philosophers of art latched onto the doctrine of disinterested judgment and what they called the "aesthetic attitude" as the key to a proper experience of an artwork. Kant's idea of disinterested satisfaction was taken to its absurd extremes in the work of Clive Bell, who ridiculously pontificates "For, to appreciate a work of art we need bring with us nothing from life, no knowledge of its ideas and affairs, no familiarity with its emotions. Art transports us from the world of man's activities to a world of aesthetic exaltation. For a moment we are shut off from human interests; we are lifted above the stream of life" ([3], 28). Here we have art completely severed from any connection to the practical affairs of life, existing eternally in a realm that utterly transcends our contingent historical situatedness in the world. I cannot help but observe the irony that Bell was penning this vision of transcendent perfection and release from the affairs of human existence – as if art were an other-worldly reality that could take us beyond the cares of our lives – on the eve of Britain's catastrophic plunge into the hell of the Great War. The juxtaposition of Bell's supernatural realm of timeless beauty (or "significant form") with the ugly tragedy of modern warfare that was about to be unleashed on the world, could not be more stark. Nor could such a transcendent conception of art be more disengaged from the meaning of our daily lives.

Neither can we excuse Edward Bullough who, just 2 years earlier [5], advised us of the necessity of disengaging from life, if we hope to achieve an objective regard for an aesthetic object. Bullough's "aesthetic outlook" requires "putting the phenomenon, so to speak, out of gear with our practical, actual self; by allowing it to stand outside the context of our personal needs and ends – in short, by looking at it 'objectively,' as it has often been called …" ([5], 298–99).

[3] This obsession with aesthetic disinterestedness was taken to its logical absurdity in Clive Bell's ultraformalism in Art (1913), and also in Edward Bullough's infamous treatment of "psychical distance" as a model for the aesthetic attitude – the proper distanced stance for perceiving the aesthetic qualities of an object [5]. The "myth of the aesthetic attitude" was demolished by George Dickie [12], and much earlier by John Dewey [11].

I confess that I cannot but wonder who is experiencing the aesthetic object and grasping its meaning, once we have put the phenomenon "out of gear with our practical actual self"? I, for one, would like my "actual self" to grasp the significance and meaning of the phenomenon, not my non-actual self! How could an artwork have any meaning if it is disconnected from our selfhood and our visceral embeddedness in the world? George Dickie long ago made mincemeat of aesthetic attitude theories of art [12], so maybe there is no point in beating this dead horse any further. But we have not yet freed ourselves from the oppressive yoke of a view that makes art irrelevant to daily life, by extracting it from the visceral meaning of our mundane affairs of living. As Tolstoy [29] argued so vehemently, aesthetics has too often become a parlor game of those wealthy enough to afford museums, concerts, and performances, who then tout the eternal excellence of their preferred artistic achievements, while recognizing no concrete connections to daily existence.

John Dewey wrote Art as Experience [11] in part to counteract what he perceived to be the disengagement of art from life, especially the removal of art into museums, where artworks supposedly become eternal objects of pure aesthetic appreciation. The art museum becomes a temple where we supposedly put aside our worldly cares and engage some transcendent beauty, significance, or truth. He was rightly reacting to the tendency to overlook the pervasiveness of art in all aspects of everyday life – a tendency that occurs whenever we regard artworks as transporting us above the affairs of day-to-day existence. Following Dewey, I am arguing for an aesthetics of our bodily, worldly existence. Such a view places art squarely within everyday life and treats the aesthetic as pertaining to all of the experiential components of human meaning. I shall, therefore, henceforth assume that an artwork, or any object or event, is valuable and meaningful only as it affects me as I am, in this world I inhabit. Once we begin to focus on how we are so affected, we then come to realize the central role of aesthetic dimensions in all aspects of our lives.

Aesthetic Dimensions of Embodied Living Creatures

To say that human beings are complex bodily and social animals is to say that the locus of all our experience, meaning, thought, valuing, communicating, and action is an ongoing series of organism-environment interactions. Dewey [8] preferred the hyphenated term "body-mind" to capture the intimate and intricate interaction of the corporeal, interpersonal, and cultural dimensions of our selfhood. Body and mind are not separate realities, but rather aspects or dimensions of a process of organism-environment interaction, in which organism and environment are interrelated, interdependent, and inter-defined. Consequently, the meaning for us of any object or event arises in the processes of organism-environment interaction that mutually define ourselves and our world. The meaning of any object, person, or event is what it affords us or points to by way of some experience we have or might have – either past, present, or future (possible) experience. For example, the meaning of the cup I see before me is actually a complex of actualized and possible

experiences, including the visual perspectives I can have on it, the ways I can grasp it and use it to drink, the social contexts in which it plays a role, all the past experiences I've had with this and other cups, and a host of future interactions I might have with it as projected possible meanings.

I am adopting what is known as a simulation semantics [2, 4, 13], according to which having a meaningful concept or thought of an object or event involves running a cognitive simulation of a range of possible experiences afforded you by that object or the scene enacted in the event. For example, our concept of a cup is not some abstract, intellectualized Platonic form of cuphood, but rather involves the activation of a functional neuronal cluster for the perceptual images I have of cups and for motor programs for interacting with a cup (reaching for it, touching it, grasping it, raising it to your lips, drinking from it). It also includes all of the feelings and emotional responses associated with cups and their role in our lives, plus any cultural significance cups might have within a particular societal context. The cup exists for me as a horizon of actual and possible "affordances" (to use J.J. Gibson's favored term) that arise from the ways my body-mind can engage that object or event. Aesthetics as a field of inquiry is therefore an investigation into every thing that makes these experiential affordances possible and gives them whatever meaning they have for us. Given our experiential embodiment and embeddedness, we therefore ought to be able to analyze the images, action schemas, radially-structured concepts, conceptual metaphors, metonymies, and feelings and emotions that are afforded us by our world. These meaningful affordances will depend equally, and interdependently, on both the nature of our bodies and the structure of the environments (both physical and cultural) that we inhabit. I will call this inquiry into the visceral sources of meaning "the aesthetics of human understanding and meaning."

Qualitative Aspects of Experience

Let us begin this aesthetic inquiry where Dewey [10, 11] began, with the qualitative character of experience that has traditionally been the concern of aesthetics. Dewey says it best: "The world in which we immediately live, that in which we strive, succeed, and are defeated is preeminently a qualitative world. What we act for, suffer, and enjoy are things in their qualitative determinations" ([10], 243). The central role of qualities in our lives should seem obvious, but that has not kept philosophers from mostly ignoring the workings of those qualities in our day-to-day experience, other than to mark them by concepts such as "red," "sweet," and "juicy." Qualities, however, are not concepts. They are modes of interaction by which an organism discriminates significant aspects of its self and world. When I earlier spoke of objects as "affording" possibilities for meaningful engagement, I was thinking of that engagement primarily in qualitative terms. Human organisms inhabit their world most immediately through their perception of qualities, often at a level beneath conscious awareness. We are in and of the world via qualitative determinations, before we know it.

One of the things we value in the arts is their heightened capacity to present the qualitative aspects of experience – qualitative dimensions that we find it extremely difficult to capture in words and concepts. Matthew Arnold's "Dover Beach," for example, does not describe or represent the qualities of a situation; rather, the poem presents and enacts those qualitative dimensions by means of images, patterns, and rhythms of the work. When Arnold writes "Listen! You hear the grating roar/Of pebbles which the waves draw back, and fling,/At their return, up the high strand,/ Begin, and cease, and then again begin,/With tremulous cadence slow, and bring/The eternal note of sadness in", the power of the lines comes not merely from any conceptual description, but rather through auditory images that present the qualitative experience of the "grating roar" of the pebbles, and the tremulous cadence of the waves. Meanwhile the syntax of the lines directly enacts the back and forth motion of the pebbles in the waves. The felt rhythm of the waves comes from our parsing of the motion realized by each succeeding phrase of the lines: draw back/and fling/at their return/up the high strand/begin/and cease/and then again begin … Each unit of these lines presents an event of the back and forth motion that you feel of the waves moving up and down the beach. In other words, our understanding of the poem operates through our sensory and motor simulation of the events presented therein.

If you doubt that we live for qualities, then you are out of touch with yourself and your world, for qualities provide the most primordial meaning available to us prior to, and underlying, any conceptual abstraction or conscious reflection we might engage in. Qualities are meaningful in the most immediate way possible for creatures like us. The red flesh around a wound tells us in one case of infection, and in another of the process of healing. The blue sky peeking through the clouds signals the passing of the storm. The desiccated green of the leaves reminds us that it is late summer and the rains have not come. The warm sun on our face on a cool day signals our being at home in the moment. The tartness of the raspberry on our tongue is very heaven, but a different heaven than the feel of your lover's flesh against your skin.

One of Dewey's most important, and yet elusive, ideas about qualities is his claim that every experiential situation we find ourselves in is demarcated by a pervasive unifying quality that gives it its distinct identity and meaning. Although every situation has its unifying quality, Dewey appropriately illustrates this notion with the exemplary case of artworks, because in art the possibilities for meaning are intensified and expanded. In a work of art, Dewey says, "its quality is not a property which it possesses in addition to its other properties. It is something which externally demarcates it from other paintings, and which internally pervades, colors, tones, and weights every detail and every relation of the work of art. The same thing is true of the "quality" of a person or of historic events" ([10], 245). The important thing about the meaning of a pervasive unifying quality of any life situation, person, or work of art is that it is felt before it is known. The qualitative unity is what gives rise to any later abstractive distinctions we can note within our experience. Moreover, any attempt to conceptualize that unity will necessarily select out some particular quality and thereby miss the unity of the whole qualitative unity of the situation. Dewey explains, "The situation cannot present itself as an element in a proposition any more than a universe of discourse can appear as a member of discourse within that universe" ([10], 247).

Within a unified situation, particular objects, with their qualities and relations, stand forth as focal points within a horizon of possible meanings. The "affordances" of any object, person, or event are the standing forth of certain possibilities for meaningful engagement with and within an encompassing situation. The meaning of the event, person, or thing is a cluster of affordances, including possible perceptions, concepts, feeling responses, and modes of interaction that the thing provides for creatures with bodies and cognitive capacities like we have. To offer an illustrative example, let us return to Arnold's "Dover Beach." The successive stanzas present and enact a complex meaningful situation, a situation that we abstractly describe as two lovers at a window at night gazing across the English Channel at Dover toward the French coast, in a way that occasions a somber and profound meditation on life's tumult, fragility, and uncertainty, in the face of which our only hope is our steadfast love and care for one another. The entire developing poem creates an organically unified situation in which this insight emerges and is experienced in all its anxiety and poignancy. That felt qualitative unity is not re-presented by the poem; rather, it is enacted in and realized through the continuous process of the unfolding of the poem. It is not an insight had apart from the poem, which could then be expressed by the lines. Rather, the unique qualitative unity exists only in and through the poem as a whole.

Image-Schematic Patterns of Meaning

Another important aesthetic dimension of meaning stems from the patterns of interaction with our environment that emerge from the makeup, situatedness, and purposive activity of our bodies. Relative to fleas and whales, we are middle-sized creatures whose perceptual and motor capacities allow us to see, touch, taste, smell, and hear certain middle-sized objects. We exist in a gravitational field that constrains the patterns of our bodily movement. We have evolved to stand erect, rather than moving on all fours, and we have an opposable thumb that lets us grasp and manipulate certain objects. Our visual system permits us only to perceive certain wavelengths of light and only to have good depth perception over a limited range of distances. Our auditory system records only a specific range of sound frequencies. In other words, out of our bodily interaction with our environmental affordances, we take the meaning of things and events in certain specified ways, according to specific interactional patterns. George Lakoff [20] and I [15] have called these recurring patterns of interaction image schemas. For example, given our bodily makeup and the contours of our physical environment, verticality is a fundamental meaning structure for creatures like us. Hence, "up" and "down" are used to mark all sorts of significant relations, from simple physical orientations ("he went up the hill") to abstract metaphorical relations ("She climbed the ladder of success," "Prices rose overnight," and "He went up the chain of command to get authority to act"). Up and down have intuitive meaning and value for us because we inhabit our world partly through verticality relations. Another basic image schema is scalar intensity. We

have evolved to experience degrees of intensity of any sensation or quality. Lights get brighter and dimmer, sounds get louder and softer, surfaces go from rougher to smoother, temperatures move from hotter to colder. Change of degree is so basic to our perceptual makeup that every language has syntactic and semantic ways of signaling these basic image-schematic types of change.

Image schemas are pre-reflectively meaningful to us because they mark basic qualitative determinations of our day-to-day experience and they constitute recurring patterns of experiential change, given the nature of our bodies and environments. Besides verticality and scalar intensity, creatures built like us find immediately meaningful such schemas as center-periphery, near-far, in-out, front-back, right-left, balance-unbalance, containment, source-path-goal movement, iteration, straight-curved, locomotion, and so forth. Languages and symbol systems around the world have found ways to indicate these primordial image-schematic meaning structures.

Importantly, image schemas have their own corporeal logic [15, 21]. If, for instance, a ball is in a box (container), the box is in a basket (container), and the basket is in a closet (container), then the ball is in the closet. This is a spatial logic (here a logic of transitive containment), learned by infants prior to any language acquisition. The corporeal image-schematic relation of successive containment is known in formal logic as the Principle of Transitivity (i.e., if A is in B, B is in C, and C is in D, then A is in D). For the most part, humans learn this image-schematic logic without any need of conscious reflection. It is a logic meaningful to us, insofar as it indicates the possibilities and direction of a developing, unfolding experience. Image-schematic inferences guide our reasoning, both nonconscious and conscious.

Image schemas are basic structures of meaning that play a crucial role in every form of human symbolic interaction and communication. As already indicated, they are pervasive in natural languages across the world, operating in both our linguistic expressions concerning our spatial and bodily experience (e.g., “the balloon went straight up”), but equally in metaphorical structuring of our abstract concepts (e.g., “I’m really up today!”). They abound in spontaneous gesture [23] and American Sign Language [28]. Architecture vastly employs image-schematic patterns, such as containment, motion along a path, links, verticality, front-back, near-far, center-periphery [16]. Dance is a symphony of bodily movements and gestures capable of exemplifying every expressive pattern of human motion [27], and this carries over directly into theater performance [22]. Our musical experience and cognition are built on image-schematic patterns [18, 30]. The visual arts utilize the felt qualities, and the bodily logic, of image schemas and concrete images [1, 17].

The Aesthetics of Emotions

Image schemas are not merely skeletal patterns of bodily perception, orientation, and motion. They are also intimately connected to values, emotions, and feelings. What could be more immediately meaningful to us than our visceral emotional

engagement with our world? An experience that we mark out as particularly meaningful is bound to be emotionally charged. And yet, strangely, the field known as Philosophy of Language that emerged in the first half of the twentieth century in Europe and America found it necessary to exclude emotion from any serious treatment of linguistic meaning. The strategy for this dismissal is exemplified in Richards and Ogden's [25] distinction between descriptive (cognitive and truth-conditional) meaning and emotive (non-cognitive) meaning. Logical empiricists tended to distinguish what they called "cognitive" functions of language, such as using sentences with propositional content to describe states of affair or to make truth claims, from what they liked to call "emotive" uses of language to express emotions or psychological attitudes.

Given their primary concern with cognitive meaning, they used this mistaken cognitive/emotive dichotomy as a basis for conveniently ignoring any serious discussion of the central role of emotion in conceptualization and reasoning. This neglect of the affective dimensions of thought has persisted unabated down to the present day in Analytic Philosophy of mind and language.

Today, however, cognitive neuroscience is rapidly dispelling the myth that cognition and reasoning can operate without the involvement of emotions and feelings. On the contrary, it is becoming evident that emotions lie at the heart of our ability to grasp the meaning of any situation in which we find ourselves. Emotions emerged evolutionarily in certain animal species as a way of nonconsciously and automatically monitoring an organism's ongoing relation with its environment and then instituting bodily changes to serve and protect the organism's interests in survival and well-being. In the words of cognitive neuroscientist Antonio Damasio, "emotions provide a natural means for the brain and mind to evaluate the environment within and around the organism, and respond accordingly and adaptively" [9]. In order to survive and flourish, animals need to instinctively avoid situations that could be threatening or harmful, and they need to seek situations that enhance their well-being. For the most part, negative emotions evolved to help an organism avoid unhealthy, dysfunctional, or harmful bodily states, by turning the organism away from the harmful state. Fear reactions, for example, are complex neural and chemical (hormonal) bodily responses to perceived threats within one's environment. Positive emotions, in contrast, tend to move us toward the realization of bodily states conducive to our survival and well-being.

Damasio [6] argues that, whatever else they do, all animals need to establish a permeable boundary within which they maintain a systemic equilibrium. If that equilibrium is significantly disrupted, no organism can long continue to function properly, or even to survive. In response to a disrupted equilibrium, the organism seeks either to return to a pre-set balanced state (i.e., homeostasis), or else it must establish a new dynamic equilibrium (i.e., allostasis) [26]. Emotions arose evolutionarily as one of the processes for monitoring and preserving the integrity, health, and well-being of the animal. Emotions are mostly automatic bodily responses to stimuli that indicate changes in an animal's body state as a result of its changing interaction with its environment. They are a primary means by which an animal tries to re-establish the essential equilibrium of its internal milieu that it needs to con-

tinue functioning. Because emotions play the central role in the maintenance of an animal's integrity and well-being, it is hard to imagine anything more important for monitoring how things are going for the organism, and, therefore, it is hard to imagine anything more directly meaningful to us than our emotional experience.

I [17] have argued that, insofar as emotions allow us to "take the measure" of our current situation and make important responsive changes, they are most certainly meaningful to us at the deepest level of our existence. Emotional response patterns are, literally, changes in our body-state in response to previous changes in our body-state caused by its environment, and they usually precede any reflective thinking or conceptualization. In that sense, they might be called "non-cognitive" (as not conceptual and propositional), but they are nevertheless at the heart of our cognitive processes, taken in the broadest sense, as concerned with all the ways we experience, make, and transform meaning. The central role of emotions in meaning is so obvious to ordinary people that it is puzzling to them to learn that analytic philosophers, until quite recently, have tended to dismiss emotion from their accounts of meaning and knowledge. This is a sad testament to the power of certain entrenched prejudices (such as that philosophy is primarily about the analysis and justification of knowledge claims) that lead us to ignore even the most important phenomena, such as emotions, qualities, and other the aesthetic dimensions of meaning.[4]

Damasio [6, 7] distinguishes between emotional response patterns and feelings of an emotion. The former operate mostly automatically and non-consciously, but sometimes we are able to become conscious of our emotional state; that is, we feel it. Damasio explains that feelings

> are first and foremost about the body, that they offer us the cognition of our visceral and musculoskeletal state as it becomes affected by preorganized mechanisms and by the cognitive structures we have developed under their influence. Feelings let us mind the body, attentively, as during an emotional state, or faintly, as during a background state… . Feelings offer us a glimpse of what goes on in our flesh, as a momentary image of that flesh is juxtaposed to the images of other objects and situations; in so doing, feelings modify our comprehensive notion of those other objects and situations. ([6], 159)

When we feel changes in our bodily state, we become conscious of their ebb and flow, and of the felt qualities of their various dimensions or components. In other words, emotions have aesthetic characteristics. As felt, they have a qualitative dimension, and therefore they are subject to changes in quality, intensity, pace (speed), and directedness. Think of that awful feeling of increasing anxiety – the adrenaline rush, the flushing, the tension of your entire body, the incipient fear – that comes in moments where we feel unsure of ourselves, overwhelmed by circumstances, or fearful of failure or indeterminacy. That fear is a bodily, visceral meaning.

[4] Positive emotions can, of course, sometimes come to be associated with pleasurable states (such as a drug-induced high) that are actually dysfunctional. However, this does not challenge the hypothesis that positive and negative emotions arose over evolutionary history to help types of higher organisms survive, realize well-being, and avoid harm. That these pleasurable feelings can be activated by ultimately harmful substances and situations is simply a reality of contemporary global events and practices.

The arts can allow us to experience the aesthetic dimensions of emotions in an intensified and nuanced manner that is often not available in our day-to-day living. Consider, for example, at least two ways in which the following short poem enacts a certain emotional state.

Quo Vadis
Sometimes I choose a cloud and let it
cross the sky floating me away.
Or a bird unravels its song and carries me
as it flies deeper and deeper into the woods.

Is there a way to be gone and still
belong? Travel that takes you home?
Is that life? – to stand by a river and go.
… William Stafford (*The Way It Is*, 1998)

The first dimension of emotional engagement stems from the way each focal image in the poem evokes a particular quality of an emotional state. There is a very specific floating feeling that accompanies our visual imaging of a cloud drifting silently across a bright sky. We feel light, airy, uplifted, floating. There is a sense of peace, attunement, and harmony. Our imagination of that scene carries us away, buoyed by that cloud. Then, the sweet, precise song of some bird gives rise to that same quality of gentle floating and graceful movement as we follow the sound further into the woods.

It can be difficult to separate the felt quality of, say, floating, from the motion of being carried away by the cloud or the birdsong, but I suggest that the second form of emotional resonance comes from the contour of our developing emotion – the flow and rhythm of the emotion as it develops. The two opening images, I have said, carry us away, and they move us to a different place, which realizes in us a different state.[5] Sometimes we are carried away to places alien, lonely, or frightening; but sometimes we are carried "home", back to a sense of belonging, safety, attunement, and nurturant care. Stafford wonders whether the secret of life is to find a way to let yourself be carried away, but with the faith that your journey will bring you "home". We must learn, he urges us, to "stand by a river and go" – to be present to our changing situation – and to go wherever it might take us. This second kind of emotional response is therefore the feeling of how we move from one emotional state to another, and there is a distinctive rhythm and flow to such movement.

Art can thus evoke emotional responses via imagery that helps to enact a felt sense of some scene or experience, but it can also present (enact) the very patterning of our waxing and waning feelings, as they change in quality, force, directedness, or manner of movement. Music famously accomplishes this latter task, because musical experience is a form of metaphorical motion [18]. Consider, for example, the first few stanzas of "Singin' in the Rain," from the 1952 film of that name. Don

[5] As Lakoff and I [21] have shown, via the STATES ARE LOCATIONS metaphor, we can understand change of state as a change of location (as in "I fell into a depression," "She pushed me over the edge," "I went from joy to anger in a flash"). In the poem, then, a change of location (i.e., being "carried away" by both the cloud and the birdsong) enacts a change in your emotional state.

Lockwood (Gene Kelly) kisses Kathy Selden (Debbie Reynolds) goodnight on her doorstep and turns around into the rain with a big smile on his face. He shoos away the idling car in front of her apartment and begins to stroll merrily down the street, singing "doo dloo doo doo doo/doo dloo doo doo doo/doo dloo doo doo doo". The rhythm of this merry doo-dloo-doo-ing fairly skips along as he glides and saunters down the street. His gait is open, free, graceful, and flowing, without hint of trouble or tension. Angry, frightened, or tense people do not "doo dloo doo doo." Don pauses, his face uplifted toward the rain, shrugs his shoulders, and closes his umbrella, embracing the rain pouring down on his grinning countenance. He turns to walk again, and begins "I'm siiiiing–in in the rain/Just siiiiing-in in the rain/What a glooor-i-ous feeeeel-ing/I'm haaaa-py again!" The "I'm" is a low D, from which he climbs up to a middle E for the "siiiing" of "siing-in in the rain." The arch up from "I'm" to "siiiing" is a felt rush of positive emotional tension – a surging up of sheer joy – mirrored in his floating walk, his upturned face, and his open posture. The melodic contour rises and falls as he saunters. When he gets to "What a glooo-ri-ous feeeeel-ing" he slides upward from "glooo" (low D) to the "ri" (middle G), up to the "ous" (middle A), and even higher up to "feeeeel" (middle C), followed by a flowing drop down to "ing" (middle A). The effect is the felt swelling of positive feeling gushing up and dropping down slightly as it pours out. Analyzing the melodic contour in terms of tones strikes us as almost ridiculous, because the fact is, we just immediately feel the expansive, floating, joy when we hear Kelly sing.

Most of this is so obvious that it may seem almost trivial to note it, but the felt contour of the musical motion is a concrete enactment of a familiar pattern of feeling we all know and desire. Notice that, even when Kelly is singing "Let the stormy clouds chase/Every one from the place/Come on with the rain" – words that might suggest the ominous or gloomy – the accompanying melody continually counteracts this gloomy possibility with its indefatigably cheery felt qualities that get immediately confirmed in the next line, "I've a smiiiiile on my face!" This line is delivered at the very moment Don pauses, opens his arms wide, turns his face upward toward the rain, and smiles a smile big enough to swallow the storm – an iconic image that captures the entire qualitative character of the event. No description of this song and dance number can capture what is obvious to everybody, and which we struggle to express in words. If you know this piece, it will now be making a continuous encore in your auditory imagination, and you probably cannot help but be affected by its infectious positive feelings. I hope you will not curse me for putting this melody on your interior play-back loop for the rest of the day, or even the rest of the week. One could have worse things stuck in their head.

The Aesthetics of Embodied Meaning

I have been arguing that we should see aesthetics as not just a theoretical exploration of the nature of art, or of some allegedly distinct type of experience that we dub "aesthetic", but rather as pertaining to all of the processes by which any aspect of our

experience can be meaningful. I call this the "aesthetics of embodied meaning" (or the "aesthetics of embodied life"), and I have explained it here mostly in terms of formal elements, images, image schemas, qualities (both pervasive unifying qualities and particular qualities of objects or scenes), emotions, and feelings, because these dimensions are too often overlooked in standard accounts of meaning, value, thought, and language. Aesthetics is about the ways embodied social creatures like us experience meaning, and these ways of meaning-making emerge from the nature of our bodies, the way our brains work in those bodies, and the structure of the environments with which we are in continual visceral interaction. On this view, art is not a particular and unique type of activity (as opposed, say, to science, technology, morality, politics, or religion), but rather is a bringing to fulfillment of the possibilities for meaning that have their roots in everyday experience. The arts are therefore exemplary modes of meaning-making, because they give us intensified, nuanced, and complex realizations of the stuff of meaning in everyday life.

The view I am presenting was first put forth 80 years ago by John Dewey in Art as Experience [11], where he says, "I have tried to show in these chapters that the esthetic is no intruder in experience from without, whether by way of idle luxury or transcendent ideality, but that it is the clarified and intensified development of traits that belong to every normally complete experience" ([11], 52–53). In art, we encounter the qualitative elements and processes of human meaning-making in ways that show us fuller possibilities for significance and growth. "Art," says Dewey, "in its form, unites the very same relation of doing and undergoing, outgoing and incoming energy, that makes an experience to be an experience. Because of elimination of all that does not contribute to mutual organization of the factors of both action and reception into one another, and because of selection of just the aspects and traits that contribute to their interpenetration of each other, the product is a work of esthetic art." ([11], 54) We care about the arts and find them important, on the occasions we do, not merely because they entertain us, but more importantly because they enact worlds, or at least modes of experience, that show us the breadth and depth of possibilities for human meaning. Mostly importantly, the arts do this using the elements of meaningful experience that constitute our everyday perceptions, judgments, and actions.

Unsophisticated and overly simplistic imitation theories of art mistakenly place the value of an artwork in its ability to represent something other than itself, such as some aspect of an external, mind-independent reality. This imitation-as-copying account of mimesis evokes the obvious question of why anyone would want such an imitation, if they could get the "real" thing (object, event, experience)? Once we realize that works of art do not re-present objects, events, meaning, knowledge, or experience, but instead that they present and enact possibilities for meaning and value in an exemplary manner, only then will we understand the significance of art. Those who speak of an "aesthetic attitude" as a disengaged, disinterested, abstractive withdrawal from the affairs of everyday life, in search of some fixed, eternal artistic essence, are actually making it impossible for art to mean something for our lives. Though I would rather discard the term, as misleading and dangerous, the only proper sense of "aesthetic attitude" is sensitivity to the forms, images, patterns,

qualities, and emotions that constitute the stuff of meaningful experience. Only when we are attentive to, appropriately critical toward, and creatively engaged with these aesthetic dimensions of embodied life are we able to be "at home" in our world – connected to our environment and to the people around us in constructive, meaningful, and moral ways.

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Chapter 3
Dewey's Aesthetics of Body-Mind Functioning

Jim Garrison

Abstract My chapter provides a genetic trace of the embodied actions (the "deeds" or pragma) of the live creatures we call Homo sapiens from the primacy of the aesthetic encounter with the precognitive qualitative situation that initiates inquiry, to the role of embodied feelings involved in selective attention that determine data for inference, to the cognitive role of embodied habits in establishing logical universals and carrying out thoughtful deliberation in artistically creating the consummatory aesthetic forms of techno-scientific inquiry. The results will be an illustration of the embodied unity of thought, feeling, and action in Dewey's aesthetics of the embodied mind.

Keywords John Dewey • Embodied mind • Pragmatist aesthetics • Embodied habits • Consummatory aesthetic form

In *The Meaning of the Body*, Mark Johnson [2] emphasizes the primacy of the aesthetic encounter and the aesthetics of human existence in the John Dewey inspired work of Thomas M. Alexander. The theme of Johnson's book is that "meaning grows from our visceral connections to life and the bodily conditions of life" (ix). In chapter 4, he explores "The Grounding of Meaning in the Qualities of Life." There he begins with a discussion of perhaps the single most important essay of Dewey's later works, "Qualitative Thought" whose thesis is: "The world in which we immediately live, that in which we strive, succeed, and are defeated is preeminently a qualitative world" (LW 5: 243). However, when Johnson [2] explores felt qualitative situations as the key to meaning, he turns to the fine work of Eugene Gendlin (79ff.). Johnson emphasizes Gendlin's stress on grasping the felt sense of a situation that although not linguistic is not entirely disconnected from "the words or forms or distinctions" and in which the body "implies what we want to do and *say*"[1] (84–85). While Gendlin's work is immensely valuable, my paper covers much the same ground in terms of Dewey's distinction between "immanent meanings" as

[1] Nowhere have emphasis been added to citations.

J. Garrison (✉)
Virginia Tech in Blacksburg, Blacksburg, VA, USA
e-mail: wesley@vt.edu

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embodied "sense" and meaning as linguistic "significance," along with what the two of them together imply for mental functioning and aesthetic experience.

Johnson's philosophy of embodied meaning and aesthetics advances a twofold hypothesis. First, "aesthetics is not just art theory, but rather should be regarded broadly as the study of how humans make and experience meaning because;" second, "the processes of embodied meaning in the arts are the very same that make linguistic meaning possible" (200). Dewey does much the same:

> The problem is that of effecting the union of ideas and knowledge with the non-rational factors [emotions and habits] in the human make-up. Art is the name given to all the agencies by which this union is effected. (LW 13: 170)

My paper employs Dewey's sense-significance distinction to explore Johnson's twofold hypothesis in detail in hopes of affecting the kind of aesthetic unity of which Dewey speaks. Like Friedrich Nietzsche, Dewey was a champion of the genetic method. My paper follows Dewey's genetic trace of the emergence of language, meaning, mind, and aesthetic experience from its primordial origins.

Intellectualism and the Philosophic Fallacy: Maintaining Creative Genetic Continuity

Dewey identifies what he calls the vice of "intellectualism," which still dominates philosophy: "By 'intellectualism' as an indictment is meant the theory that all experiencing is a mode of knowing" (LW 1: 28). Intellectualism always privileges cognition (concepts, categories, ontology, truth, etc.) while often ignoring the embodied active and affective aspects of human experience completely. It is the principal barrier to Johnson's Deweyan inspired aesthetics of body-mind functioning.

We are living participants in the course of cosmic events, not disembodied spectators. Therefore, we bear many relations with the world around us. Our primary relation to existence is not mediated cognitive knowing; rather, it is one of the immediate presence of anoetic being and having. We sustain many intimate relations to existence, including doubt, joy, melancholy, despair, tragedy, reverence, amusement, fear, confusion, and hope whose qualities we feel long before we ever think them.

Experienced situations are anoetically given; all the rest is taken or created.[2] Perhaps nowhere does Dewey make anoetic qualitative giveness clearer than in his instrumental theory of inquiry. Here is an example from his Logic: The Theory of Inquiry:

> That which is "given" in the strict sense of the word "given," is the total field or situation. The given in the sense of the singular, whether object or quality, is the special aspect, phase or constituent of the existentially present situation that is selected to locate and identify its problematic features with reference to the inquiry then and there to be executed. In the strict sense, it is taken rather than given. This fact decides the logical status of data. (LW 12: 127)

[2] "This is not the so-called "myth of the given." Dewey denies cognitive intuitions (i.e., *nous*). All that is immediately given is our experience of existence. We cannot create *ex nihilo*."

That is why in "Qualitative Thought," Dewey insists:

> [I]ntuition precedes conception and goes deeper … . Intuition, in short, signifies the realization of a pervasive quality such that it regulates the determination of relevant distinctions or of whatever, whether in the way of terms or relations, becomes the accepted object of thought. (LW 5: 249)

As to Dewey and Johnson's use of "aesthetic," we may say that the quality of our noetic thinking depends on the quality of our anoetic intuitions. If we intuit a qualitative situation of inquiry improperly, it will not matter if our discursive thought proves perfect, the inquiry will still fail.

Dewey elsewhere notes: "The name objects will be reserved for subject-matter so far as it has been produced and ordered in settled form by means of inquiry; proleptically, objects are the objectives of inquiry" (LW 12: 122). Objects, essences, and logical forms, like all aesthetic forms, are products of a process of inquiry. We creatively make them from existentially given immediate anoetic qualitative situations and use them to perform mediating cognitive functions. That is why Dewey says, "science itself is but a central art auxiliary to the generation and utilization of other arts" (LW 10: 33). Science produces warranted assertions, objects, and other forms, which are auxiliary to other modes of artistic production.

Ontology, including cognitive categories, is a product of deliberation; we artistically create them in the course of inquiry. Indeed, to think otherwise is to commit "the philosophic fallacy," which is the "conversion of eventual functions into antecedent existence" (LW 1: 34). The arts create aesthetic forms for our aesthetic appreciation. In his Logic, Dewey observes:

> [I]t requires the deliberate effort which constitutes art, and the deliberate efforts constituting various arts, to bring the antecedent natural materials and relations together in the way that forms a work of art. The forms that result are capable of abstraction. As such they are the subject-matter of esthetic theory. (LW 12: 372)

We should not be surprised when he writes: "What I have said in Art as Experience, in chapter VII, on 'The Natural History of Form' can be carried over, mutatis mutandis to logical forms" (372). I will not work out the small changes necessary to distinguish the two kinds of forms, but let me mention that the mathematician and scientist are primarily interested in symbolic manipulation while those more commonly called artists largely work directly with qualities. However, it greatly aids those primarily interested in mediation to nonetheless have an aesthetic appreciation for the quality of their mediating tools (e.g., the beauty of mathematics, a well-wrought trope, or an elegant lathe) while those who work more directly with existential qualities must master the tools of their craft.

Let us carefully differentiate between ineffable immediate anoetic qualitative experiences of an existentially given situation and the mediating logical essences we create from such experience. It is rather like distinguishing grapes on the vine from the distilled import of the grapes for our purposes, wine in a glass. If we maintain these features without constructing a false dualism, we can acknowledge what noncognitive functioning contributes to cognition. Of course, what we create from existence also exists, but we must not commit "the philosophic fallacy." Confusing socially constructed linguistic meaning with antecedent existence is an instance of the fallacy.

Reflecting on the damage caused by committing the error of intellectualism, Dewey remarks:

> When intellectual experience and its material are taken to be primary, the cord that binds experience and nature is cut. That the physiological organism with its structures, whether in man or in the lower animals, is concerned with making adaptations and uses of material in the interest of maintenance of the life-process, cannot be denied … . Hence, unless there is breach of historic and natural continuity, cognitive experience must originate within that of a non-cognitive sort. (LW 1: 29–30)

Dewey is eager to preserve emergent continuity. Darwin's theory of evolution is the most famous instance of the genetic method in history. Dewey's instrumental theory is an instance of his use of the Darwinian method. Dewey states: "Genetic method was perhaps the chief scientific achievement of the latter half of the nineteenth century. Its principle is that the way to get insight into any complex product is to trace the process of its making,--to follow it through the successive stages of its growth" (MW 9: 222). Following the genetic method allows us to avoid the philosophic fallacy while tracing the creative emergence of higher cognitive functioning from its embodied and aesthetic beginnings. It also allows us to avoid confusing the metaphysical existence of events with their logical essences.

We have seen that Dewey draws a distinction between qualitative existence and the logical essences we create from it. Ignoring this distinction leads to the philosophic fallacy, which is unnecessary because,

[T]here is a natural bridge that joins the gap between existence and essence; namely communication, language, discourse. Failure to acknowledge the presence and operation of natural interaction in the form of communication creates the gulf between existence and essence, and that gulf is factitious and gratuitous. (LW 1: 133)

We have been discussing logical essences (forms, judgments, and their constituents data, kinds, objects, and such) as instances of things created from existentially given situations. However, logic, (i.e., ordered discourse) depends on linguistic meaning. Wishing to avoid the philosophic fallacy, we must emphasize the embodied emotional aspect of meaning once it emerges. Therefore, we will have much to say about what Dewey calls "sense" meaning or sometimes "immanent meanings" (MW: 380, 385; LW 3: 87, 90; LW 4: 190, and elsewhere), which are the kind of affective embodied meanings Johnson exposits when he proclaims: "Meaning is not limited only to those bodily engagements, but it always starts with and leads back to them. Meaning depends on our experiencing and assessing the qualities of situations" (70). Indeed, Johnson [2] frequently refers to what he calls "immanent embodied meaning," which, like Dewey, he wishes to extend to all meaning (222; see also 9, 10, 17, 25, 34, 222, 245).

Three Plateaus of Emergent Existence: Primordial Aesthetic Quality

Dewey identifies three emergent plateaus of cosmic transactions each of which emerge out of the one below it without breach of continuity (see LW 1: Ch. 7). Each contributes something to human functioning. The distinction among them is "one of

levels of increasing complexity and intimacy of interaction among natural events" (200). For Dewey, existence is comprised of transacting reciprocally transforming events and not lumpy substances (ousia).[3] Carefully differentiating among them allows us to avoid at least one serious instance of the philosophic fallacy:

> The distinction between physical, psycho-physical, and mental is thus one of levels of increasing complexity and intimacy of interaction among natural events. The idea that matter, life and mind represent separate kinds of Being is a doctrine that springs, as so many philosophic errors have sprung, from a substantiation of eventual functions. The fallacy converts consequences of interaction of events into causes of the occurrence of these consequences (200)

Unpredictable and unprecedented properties appear as the consequence of emergent trans-actions.

The first plateau is that of physico-chemical interactions, which is the topic of physics and chemistry. Even at this level, there are emergent trans-actions. For instance, water (H_2O) extinguishes combustion, hydrogen (H) is highly combustible, and oxygen (O) sustains combustion. The second plateau is that of the psycho-physical, which is the animate level of life involving carbon-based organic functioning studied by biology. We are most interested in human functioning. For Dewey this is the plateau where qualities and feelings emerge; hence, it is a vital part of aesthetic experience. The third plateau is that of "association, communication, participation" that "define mind as intellect: possession of and response to meanings" (209). This is the familiar one of the social construction of linguistic meaning and logical essences. We will concentrate on the emergent transition from psycho-physical functioning to body-mind functioning that allows us to illustrate Johnson's second hypothesis regarding embodied meaning and aesthetics.

The following passage from Dewey bears a remarkable similarity to Johnson's first hypothesis: "If we take advantage of the word esthetic in a wider sense than that of application to the beautiful and ugly, esthetic quality, immediate, final or self-enclosed, indubitably characterizes natural situations as they empirically occur" (82). It is precisely this wider sense of the aesthetic that lies at the core of Johnson's [2] emphasis on the primacy of the aesthetic encounter. Dewey continues:

Any quality as such is final it is at once initial and terminal; just what it is as it exists. It may be referred to other things, it may be treated as an effect or as a sign. But this involves an extraneous extension and use. It takes us beyond quality in its immediate qualitativeness. If experienced things are valid evidence, then nature in having qualities within itself has what in the literal sense must be called ends, terminals, arrests, enclosures. (LW 1: 82)

Signs mediate among immediate experiences. They include natural, existential, and evidential signs (e.g., where there is smoke there is fire) as well as arbitrary abstract linguistic (i.e., conventional) symbols, which are taken from immediate quality and used to help coordinate functional trans-actions. In psycho-physical functioning, this involves using natural signs to facilitate organism-to-organism communication as well as organism-environment transactions. Body-mind func-

[3] "Today's field theories conceive mutually modifying relations among energy events wherein the relata are merely emergent transactional functions of the system of relations. Modern physics derives its ontology from such systems."

tioning involves similar transactions using linguistic signs (i.e., symbols). We are especially interested in how linguistically significant meanings emerge out of psycho-physical functioning because such operations provides the source of embodied immanent "sense" meaning.

The Psycho-Physical Matrix of Aesthetic Experience: The Live Creature and Art in Germ

Dewey titles the opening chapter of Art as Experience, "The Live Creature" (LW 10). There he declares: "To grasp the sources of aesthetic experience it is, therefore, necessary to have recourse to animal life below the human scale" (24). He is very serious. Of generic "man," he writes: "The organs with which he maintains himself in being are not of himself alone, but by the grace of struggles and achievements of a long line of animal ancestry" (19). Dewey is a Darwinian, but his "natural piety" provides him with a sense of profound cosmic religiosity and spirituality even as he decries dogmatic religion. Let us approach our animal ancestry with Dewey's Wordsworthian natural piety, an appreciation of Darwinian continuity, and reverence.

We begin with some of the characteristics of any living psycho-physical function. For Dewey, a function is: "Any process, sufficiently complex to involve an arrangement or coordination of minor processes, which fulfills a specific end in such a way as to conserve itself, is called a function" (MW 6: 466). Functions are exceedingly complex; for instance: "Any operative function gets us behind the ordinary distinction of organism and environment. It presents us with their undifferentiated unity, not with their unification. It is primary; distinction is subsequent and derived" (377). He rejects the organism versus environment dualism remarking, "a living organism and its life processes involve a world or nature temporally and spatially 'external' to itself but 'internal' to its functions" (LW 1: 212). Oxygen, food, water, and a mate are external to our epidermis, but unless they sometimes become internal to our functioning, we cannot satisfy the Darwinian imperatives of survival and reproduction.

No organism is simply located in space or time. Therefore, in Art as Experience, Dewey remarks regarding "the aesthetic in experience":

> The first great consideration is that life goes on in an environment; not merely in it but because of it, through interaction with it. No creature lives merely under its skin; its subcutaneous organs are means of connection with what lies beyond its bodily frame … . The career and destiny of a living being are bound up with its interchanges with its environment, not externally but in the most intimate way (LW 10: 19)

A truly embodied aesthetics is as much about the environment of the living creature (including culture) as about the creatures themselves.

In any atemporal cross-section, Dewey insists, "there is no basis of distinguishing organism and environment" (MW 13: 378). Homeostasis is an essential part of any biological understanding of the live creature. It is a dynamic rhythm of equilibrium-

disequilibrium-restoration of equilibrium that allows us to distinguish organism and environment. The transactant operating at any moment to maintain functioning is the organism, while what first intervenes to disturb equilibrium and aids or obstructs its restoration is the environment. This primal rhythm establishes a need-demand-satisfaction cycle that is the fundamental rhythm of life. In this cycle, the activities of satisfying the demands of need are the procurers of artistic creation and the satisfactions that follow the precursors of aesthetic appreciation.

Here is how Dewey explains the primordial animal rhythm of need-demand-satisfaction:

> By need is meant a condition of tensional distribution of energies such that the body is in a condition of uneasy or unstable equilibrium. By demand or effort is meant the fact that this state is manifested in movements which modify environing bodies in ways which react upon the body, so that its characteristic pattern of active equilibrium is restored. By satisfaction is meant this recovery of equilibrium pattern, consequent upon the changes of environment due to interactions with the active demands of the organism. (LW 1: 194)

In his aesthetics, Dewey speaks of need as giving rise to "a demand, a reaching out into the environment to make good the lack and to restore adjustment by building at least a temporary equilibrium" (LW 10: 19). The restorations of equilibrium "are balance and harmony attained through rhythm" (20). From this sense of harmony, he asserts: "There is in nature, even below the level of life something more than mere flux and change. Form is arrived at whenever a stable, even though moving, equilibrium is reached" (20). This is the primordial matrix of aesthetic form.

The brute rhythms of animal life provide the matrix for aesthetic experience, which is why Dewey emphasizes:

> Because the actual world, that in which we live, is a combination of movement and culmination, of breaks and re-unions, the experience of a living creature is capable of aesthetic quality. The live being currently loses and re-establishes equilibrium with his surroundings. The moment of passage from disturbance into harmony is that of intensest life. (22)

Anyone that can read these words is a body-mind. If your bodily functions fail to grasp the noncognitive lived immanent (i.e., "sense") meaning of these words, you may have the cognitive semiotically mediated experience (i.e. significant meaning) of their linguistic referent, but will miss the richer consummatory aesthetic meaning. That is because any living creature is a "moving equilibrium of integration" (MW 13: 377). The equilibrium while it endures has primordial aesthetic form. Therefore,

> [T]he simplest act of grasping while one and simple as an act, involves spatial and serial extension; antagonistic muscles—balance of relaxation and expansion—activity of circulatory and nervous mechanisms, pressure, resistance, etc. If we use the term environment in its widest sense, it is an integration of many, indefinitely many, environmental energies. (377–378)

The inability to grasp even some small measure of the immanent meaning of a work of art means total failure to have any aesthetic experience at all. We will find that while body-mind functioning transforms psycho-physical functioning, it never loses it animal-like dependence.

There is no aesthetic experience without an accompanying affective experience. However, most follow Kant in confining esthetic experience to the affective domain alone. Johnson [2] remarks: "It was precisely John Dewey's mission, in his 1934 book Art as Experience, to lead us to a discovery of art as a condition of life and meaning" (212). Let us consider the role of feeling as a condition of life and meaning.

Feelings emerge from an exceedingly embryonic level of psycho-physical functioning. For Dewey, sensitivity to the environment arising from "an operative presence of the whole in the part and the part in the whole" in complex functioning "constitutes susceptibility—the capacity for feeling" (LW 1: 197). Because the organism must act to maintain homeostasis, sensitivity becomes a "selective bias in interactions with environing things exercised so as to maintain itself" (196). Consider plants, which must secure environmental nutrients while avoiding trans-actions harmful to their functioning (e.g., poisons). For instance, plants display gravitropism, which involves detecting the gravitational field responding with roots growing in the direction of gravitational pull while stems grow in the opposite direction. Animals have a similar capacity to orient and respond to gravity along with many other types of energy, but it involves complex physiological processes. Animals more complex than sponges have neurological systems that facilitate detection and response.

Dewey is confident that "in animals in which locomotion and distance receptors exist, sensitivity" is "realized as feeling, even though only as vague and massive uneasiness, comfort, vigor and exhaustion" (197). With locomotion and distance perception bias becomes explicitly selective of some qualities and qualitative configurations, which also implies rejecting environmental qualities. Here, activities "are not merely selective, but are discriminatory, in behalf of some results rather than others" (197). Meager selective bias becomes "interest, and satisfaction a good or value and not a mere satiation of wants or repletion of deficiencies" (197). Interest binds us to environmental stimuli and stimulus-objects and helps motivate our actions.

Moving and encountering obstacles to securing or evading some motivating stimulus-object assures that the organism remains affectively activated. In ordinary language, we may say that the organism desires and is motivated to secure and evade something or some situation. Therefore, we may assume:

However it may be with plants and lower animals [e.g., sponges], in animals in which locomotor organs are accompanied by distance-receptors, response to the distant in space becomes increasingly prepotent and equivalent in effect to response to the future in time. A response toward what is distant is in effect an expectation or prediction of a later contact [e.g., touch or taste]. Activities are differentiated into the preparatory, or anticipatory, and the fulfilling or consummatory. (197)

The outcome of this differentiation is an affective tension permeating a potentially long series of cumulative anticipatory and preparatory activities directed toward some consummatory quality to which they contribute (e.g., food, security, sex). Anticipatory and consummatory activity functions to maintain homeostasis, and germinates aesthetic experience. When this series of actions become routine, we may acquire habits of carrying out the sequence to secure the consummation. "Without habits dealing with recurrent and constant uses of things for abiding pur-

poses," Dewey remarks, "immediate esthetic perception would have neither rich nor clear meanings immanent within it" (LW 4: 190). Together, habits and feeling constitute immanent meaning and thereby contribute immensely the having of an aesthetic experience.

The terminus of action constitutes an immediate qualitative consummatory experience (i.e., satisfaction, restoration of equilibrium, etc.). The unity is the product of the processes, the series of thoughts, feelings, and activities that produced it. Further, many aspects of the process must remain to constitute the consummatory product and the organism must repeat much of the process to reproduce the satisfying consequence again in the future. The retention of the activities of the processes that produce the product is an important part of habit formation. Furthermore, habits structure feelings, thereby contributing to consummatory affective experience. What of thought and intelligence? While habits are not cognitive "knowledge that," we may nonetheless "be said to know how by means of our habits" (MW 14: 124). Dewey suggests we think of "habits as technical abilities" (21). That is to say, "habits are arts" involving "skill of sensory and motor organs, cunning or craft, and objective materials. They assimilate objective energies, and eventuate in command of environment" (15–16). This is precisely the sort of thing we would expect given Johnson's [2] argument for "Movement As A Basis of Meaning" (24–31). It is what you get in a creature capable of locomotion and distance perception, which is no doubt the basis for the "Source-Path-Goal" image schema. Habits are the motor component of Lakoff and Johnson [3] and Johnson's [2] sensory-motor theory of conceptual metaphor.

Anticipatory and consummatory activity provides the affective embodied basis for grasping immanent meaning. It is an experience of almost artistic anticipatory mediating activity leading to nearly aesthetic immediate consummatory experience. Here is how Dewey concludes his discussion of the live creature in chapter 1 of Art as Experience:

> Experience in the degree in which it is experience is heightened vitality … . [I]t signifies active and alert commerce with the world; at its height it signifies a complete interpenetration of self and the world … . Because experience is the fulfillment of an organism in its struggles and achievements in a world of things, it is art in germ. Even in its rudimentary forms, it contains the promise of that delightful perception which is esthetic experience. (LW 10: 25)

Failure to grasp the animal struggles, pains, and pleasures whence aesthetic experience grows implies we will never fully appreciate aesthetic experience in our daily lives. For Dewey, there is a Darwinian continuity between the social construction of representational "significant meanings" and noncognitive sentiency and feeling as well as acquired habits of action whence abstract cognition and linguistic representation (i.e., significant meanings) emerge and continue to depend.

Immanent meaning comprises the greater part of what Dewey means when he says, "In the end, works of art are the only media of complete and unhindered communication between man and man that can occur in a world full of gulfs and walls that limit community of experience" (110). Let us look at what immanent meaning contributes to aesthetic experience and complete communication.

The Semiotic and Social Matrix of Aesthetic Experience: The Emergence of Language

"Sentiency in itself is anoetic," Dewey notes, "it exists as any immediate quality exists, but nevertheless it is an indispensable means of any noetic function" (LW 1: 199). Noetic functioning is body-mind functioning, which emerges from socio-linguistic functioning that depends in turn on anoetic functions as well as higher-level psycho-physical semiotic functioning. In this section, we trace the emergence of arbitrary symbolic linguistic "significant meanings" from their anoetic matrix. In the next section, we will show how this psycho-physical trace persists as "immanent meaning" in the abstract references of "significant meaning."

As we have seen, the qualities and feeling "are converted into a series in which some acts are preparatory and others consummatory" (206). This is a critical step because: "This series forms the immediate material of thought when social communication and discourse supervene" (206). This occurs because the "subordination of contact-activity to distance-activity is equivalent to the possibility of release from submergence in the merely given, namely, to abstraction, generalization, inference" (207). With distance perception and locomotion, activity becomes productive of results; that is, consummatory experiences. Psycho-physical organisms capable of such behavior can take and use present qualities to indicate other qualities in a complex cumulative series, which is a precondition of linguistic functioning.

Sufficiently complex nonlinguistic social animals can functionally coordinate a complex series of social actions for the Darwinian purposes of securing nourishment, avoiding predation, and a mate as well as simply delighting in each others company as a consummatory experience. Consider a pack of wolves coordinating a hunt. Dogs have distinct barks that communicate not only with each other, but which human beings can interpret [5]. Conceivably, most of our communication with other human beings involves unconscious prelinguistic communication mediated by natural signs and icons (e.g., maps). The communication of emotion is largely nonlinguistic and occurs across cultural and linguistic differences [1]. The role of natural, as well as iconic, signs in immanent meaning is largely ignored by Johnson and will only be mentioned in my paper, but it indicates a rich domain for future investigation.

Dewey calls the social use of natural signs "signaling." Linguistic communication merely extends such social and semiotic psycho-physical activities:

It is also an obvious empirical fact that animals are connected with each other in inclusive schemes of behavior by means of signaling acts, in consequence of which certain acts and consequences are deferred until a joint action made possible by the signaling occurs. In the human being, his function becomes language, communication. (213)

Signaling using natural signs including audio and visual gestures is limited to taking and using existential qualities immediately present in the social situation to mediate the action.

The ability to take and use qualities as natural signs to socially mediate action is the highest level of psycho-physical functioning. Once social organisms can create and use purely arbitrary artificial symbolic signs, they enter the domain of body-mind functioning; it is the domain of the social construction of significant meaning. Body-minds may use qualities as purely arbitrary representative conventional signs. We operate on abstract symbols without existential constraint using them to refer to things not present, or like the Jabberwock, presentable only to imagination. Imagination is an emergent property of body-mind functioning that always retains aspects of its psycho-physical precedents. Creatures capable of it can comprehend the possible within the actual, and even creatively actualize it.

Those already familiar with Wittgenstein's [8] use theory of language and the famous slab game near the beginning of Philosophical Investigations will have no trouble with the following passage:

> Language is specifically a mode of interaction of at least two beings, a speaker and a hearer; it presupposes an organized group to which these creatures belong … . It is therefore a relationship, not a particularity … . The meaning of signs moreover always includes something common as between persons and an object. When we attribute meaning to the speaker as his intent, we take for granted another person who is to share in the execution of the intent, and also something, independent of the persons concerned, through which the intent is to be realized. Persons and thing must alike serve as means in a common, shared consequence. This community of partaking is meaning. (LW 1: 145)

There is considerable empirical research confirming that the acquisition of language is a social trans-action involving at least two communicants capable of taking the attitude of the other toward a third thing [7]. We now know that mirror neurons greatly facilitate taking the attitude of the other in many animals, which in effect solves the problem of other knowing minds (see [2], 38–40, 142, 161–162) [6]. For Dewey and Wittgenstein there are no private languages, nor private intent; the creation of meaning and knowing are always social co-creations.

Dewey finds that when "sentience is taken up into a system of signs, when for example a certain quality of the active relationship of organism and environment is named hunger, it is seen as an organic demand for an extra-organic object" (199). Significant meanings emerge when the qualities of acts become purely arbitrary linguistic signs. When this happens, qualitative immediacies cease to be dumbly rapturous, a possession that is obsessive and an incorporation that involves submergence: conditions found in sensations and passions. They become capable of survey, contemplation, and ideal or logical elaboration … . (LW 1: 133–134)

The color we conventionally call "red" is an anoetic existential quality arising from interacting events. When social interactions reach the level of linguistic communication, we may co-creatively take the quality "red" and use it to mean (signify) "stop" thereby socially coordinating transportation. We may designate the essence of red as 6,438.46963 Å for the spectral line of cadmium in air for the purposes of a specific scientific inquiry, a refinement of the everyday linguistic meaning of red. If we know where we are with respect to the linguistic bridge, do not confound existence with essence, or commit the philosophical fallacy, then we should not be confused. Existence is given, we create meanings and essences.

With language, we may articulate what we have and are to others and ourselves. Remember, there are no private languages. We may have a qualitative anoetic experience of immediate pain and, via mirror neurons, sympathy for the pains of others, but it is meaningless in its immediacy. Nor may we know our pain without language. Raw feelings are not entirely subjective; they are properties of organism-environmental trans-actions. Therefore, Dewey declares:

> Complex and active animals have, therefore, feelings which vary abundantly in quality, corresponding to distinctive directions and phases—initiating, mediating, fulfilling or frustrating—of activities, bound up in distinctive connections with environmental affairs. They have them, but they do not know they have them. Activity is psycho-physical, but not "mental," that is, not aware of meanings. As life is a character of events in a peculiar condition of organization, and "feeling" is a quality of life-forms marked by complexly mobile and discriminating responses, so "mind" is an added property assumed by a feeling creature, when it reaches that organized interaction with other living creatures which is language, communication. (198)

Dewey is clear that he wishes to contribute "to what has come to be called an 'emergent' theory of mind" (207).

With language, what we have and are undergoes a profound emergent transformation; we become body-minds. "The consequences of partaking in communication modify organic ways of acting," Dewey declares, "the latter attain new qualities" (222). Once you become a linguistic being, there is no going back. Nonetheless, we never cease being bodies as well as minds: "Biological acts persist, but have sense, meaning, as well as feeling tone" (221). The having of anoetically felt qualities persists as a part of any noetic experience, and that it why it is always possible to enjoy the simple aesthetic sense of being and having a meaning without using it. Still, if we could not first make and use qualities linguistically, we could not have neither significant nor immanent meaning.

Consummatory Experience, Appreciation, and Understanding: From Significant to Immanent Meaning

Here is how Dewey describes the transformation of immediate anoetic qualitative sentiency into significant meanings:

> Differences in qualities (feelings) of acts when employed as indications of acts performed and to be performed and as signs of their consequences, mean something … . Without language, the qualities of organic action that are feelings are pains, pleasures, odors, colors, noises, tones, only potentially and proleptically. With language they are discriminated and identified … . When named, they enable identification and discrimination of things to take place as means in a further course of inclusive interaction … . The notion that sensory affections discriminate and identify themselves, apart from discourse, as being colors and sounds, etc., and thus ipso facto constitute certain elementary modes of knowledge, even though it be only knowledge of their own existence, is inherently so absurd that it would never have occurred to any one to entertain it, were it not for certain preconceptions about mind and knowledge. (198)

Johnson [2] bemoans the fact that many philosophers are willing to accept what he calls "immanent, embodied meaning," but "are quite reluctant to extend embodiment to all meaning" (222).

Passages such as the one below are especially inspiring to those wishing to pursue an encompassing embodied theory of meaning:

> The qualities of situations in which organisms and surrounding conditions interact, when discriminated, make sense. Sense is distinct from feeling, for it has a recognized reference; it is the qualitative characteristic of something, not just a submerged unidentified quality or tone. Sense is also different from signification. The latter involves use of a quality as a sign or index of something else, as when the red of a light signifies danger, and the need of bringing a moving locomotive to a stop. The sense of a thing, on the other hand, is an immediate and immanent meaning; it is meaning which is itself felt or directly had. When we are baffled by perplexing conditions, and finally hit upon a clew, and everything falls into place, the whole thing suddenly, as we say, "makes sense." In such a situation, the clew has signification in virtue of being an indication, a guide to interpretation. But the meaning of the whole situation as apprehended is sense … . Whenever a situation has this double function of meaning, namely signification and sense, mind, intellect is definitely present. (LW 1: 200)

When language supervenes on anoetic qualities, the feelings that accompany them, the habits that organize them, and the use of natural signs (and icons) at the psycho-physical plateau, they become subfunctions of noetic body-minds functioning. This is precisely what Johnson [2] claims when he insists, "our bodies … and our environments together generate a vastly meaningful milieu out of which all significance emerges" (31). Further, he argues we "can call this nonconscious dimension immanent meaning" (31).

Dewey observes: "Organic and psycho-physical activities with their qualities are conditions which have to come into existence before mind … . They supply mind with its footing and connection in nature; they provide meanings with their existential stuff" (LW 1: 227). Therefore, the cord that binds intellectual functioning with experience and nature remains unsevered. He insists: "Every thought and meaning has its substratum in some organic act of absorption or elimination … of destroying or caring for, of signaling or responding. It roots in some definite act of biological behavior; our physical names for mental acts like seeing, grasping, searching, affirming, acquiescing, spurning, comprehending, affection, emotion are not just 'metaphors'" (221). Because these activities are more than just metaphors, we have the pattern for Lakoff and Johnson [3] and Johnson's [2] theory of "image schemas" that undergirds their embodied sensory-motor theory of metaphor. For example, Dewey says, "Except as a reader, a hearer repeats something of these organic movements [of selecting, rejecting, expulsions, appropriations, etc.], and thus 'gets' their qualities, he does not get the sense of what is said; he does not really assent, even though he give cold approbation" (LW 1: 227). It is one thing to assent in thought, another to assent in feeling and action.

Once we grasp the sense (immanent meaning) versus significance (linguistic meaning) distinction and the connection between them, we may understand how one sometimes come to the fore more than another, although both must be functioning for their to be minds, meanings, and knowings. Dewey insists: "In some linguistic situations, such emphatic immediate presence of sense occurs; language is then

poetical. For other purposes, action is served by elimination of immediate sense as far as possible" (LW 1: 223). When we emphasize meanings in their most instrumental usages such as in mathematics, embodied immanent meaning recedes into the background, although Lakoff and Núñez [4] use image schemas and such to document its permanent presence.

When sense meaning comes to the fore, Dewey affirms: "Meaning may become purely esthetic; it may be appropriated and enjoyed for what it is in the having. This also involves control; it is such a way of taking and using them as to suspend cognitive reference" (LW 1: 220). We must be careful, however. We are talking about immanent meaning (sense), which, since it is a meaning, depends on first having taken and used immediate qualities as signs. We must distinguish two kinds of having, one before language supervenes and another afterwards. There is what we anoetically have and are (qualitative feelings, unconscious habits), but once language supervenes, we may have these feelings as discriminated and objectified pains, pleasures, odors, colors, noises, tones, and other qualitative traits.

Since significant meaning involves using a quality as a sign or index, it has a recognized reference that is namable if not named; for example, when the quality of the color red is creatively used as a purely arbitrary linguistic sign "red" means, for those such as the train engineer that can interpret it, 'stop the locomotive.' Significant meanings retain a trace of the felt qualities and embodied habits that went into their construction. This retention along with its subsequent use within an ongoing series of actions (say, sailing a boat) comprises Deweyan "immanent meaning." Embodied affective, habitually structured immanent meaning emerges from significant meaning after language supervenes. Sense "has a recognized reference; it is the qualitative characteristic of something, not just a submerged unidentified quality or tone" (LW 1: 200). The "something" (some thing) in this sentence is some named or namable object, the referent. Significant meanings, including their referent, retain a trace of the felt qualities and embodied habits that went into their linguistic construction. Following Dewey genetic trace discloses the sources of immanent meaning.

Immanent sense meaning involves an immediate qualitative consummatory appreciation and perhaps enjoyment of the referent of signification once secured. It retains some of the habits of action acquired in securing the referent as well as the feeling of consummatory unity the referent brings by helping to coordinate action. Immanent meaning enhances the subsequent use of the mediating significant representations. Thus, Dewey comments: "According to my hypothesis, immanent meanings exist in consequence of the repeated successful outcome of referential or evidential meanings … . Thus the fulfilling or consummatory meaning of a referential case becomes the immanent meaning, the directly taken-for-granted meaning, of subsequent situations" (LW 3: 87). The actions carried out in securing a reference may become habitual, including habits of inference using natural signs, and, henceforth, available in similar future situations. When a subsequent situation has an intuitively felt quality similar to one that preceded it, we may immediately grasp the situation and respond without further thought. Consequently, the noncognitive embodied precursors of significant representational (i.e., referential) meaning allow us to subsequently use them more swiftly and securely, but only because cognitive meanings have rendered those previously unintelligent habits and chaotic qualitative feelings intelligent, unified, and functionally coordinated.

Dewey's example is that of an experienced versus an inexperienced sailor that hears a loud crack in the masts during a violent storm. The inexperienced sailor must consciously, deliberately, and relatively slowly if at all "infer—use the noise as a symbol—and do something to find the signified;" that is, to find the referent and perhaps repair it (LW 3: 89). For the experienced sailor having made many such referential inferences, "the noise will be, to him, a sail blown out of its bolt ropes" (89). The experienced sailor has the habitual know how and intuitive feeling for what binds her together with the nautical parts and environmental conditions into a single whole such that she may quickly restore dynamic functional unity to the disrupted situation without consciously thinking about. Dewey concludes, the latter "sort of thing is what is intended by the phrase 'immanent meaning'" (89). Recall that the fulfilling meaning of a reference becomes "the immanent meaning, the directly taken-for-granted meaning, of subsequent situations" (op. cit.).

For any given significant meaning or reticulated set of such referential meanings (say, a scientific theory) that is the focus of current cognition, there is always a surrounding embodied fringe not only of other significant meanings, but felt qualities and available habits that provides the working context of the cognitive function. "The larger system of meaning suffuses, interpenetrates, colors what is now and here uppermost;" Dewey says, "it gives them sense, feeling, as distinct from signification" (LW 1: 231). Whether the "object" of significant reference is a scientific theory, a mathematical proof, or Picasso's Guernica, to fully grasp its meaning requires a consummatory appreciation characteristic of aesthetic experience.

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[4]Citations of the works of Dewey are to the critical edition published by Southern Illinois University Press. Volume and page numbers follow the initials of the series. Abbreviations for the volumes used are:

MW The Middle Works (1899–1924)
LW The Later Works (1925–1953)

Chapter 4
Corporeal Cognition: Pragmatist Aesthetics in William James

Thalia Trigoni

[T]he transmission of body signals, opens the way to defining a reality determined by corporeal conventions.

(Susan Broadhurst ([1]: 77))

The ultimate reality is not thought, for thought cannot create.

(William Butler Yeats ([16]: 419))

Abstract This chapter seeks to establish that William James articulates an ontological and aesthetic theory wherein the body is conceived of as capable of performing complicated forms of cognition even as it does not possess the conceptual apparatus of the discursive, conscious mind. In order to corroborate this thesis, I will be looking into various contexts, including James' notion of the selective nature of sensory perception that shapes experience, his distinction between percept and concept, and his theory of emotion. Another major context that provides valuable insight into James' aesthetics is the field of arts. These case studies help demonstrate how James' view of the body as an intelligent cognitive agent appears to have a much more powerful sway over the mind than we have hitherto been able to detect.

Keywords William James • Selective nature of sensory perception • Percept and concept • Cognitive agent • Emotions

Introduction

James' name has long been associated with aesthetics, his writings offering a fertile field of enquiry within which to study the ways in which the body affects the mind. In broad terms, critics interested in James' theory of the embodied mind tend to stress the intimate connection of mind and body, of sensate experience and rational thought [10,

T. Trigoni (✉)
Faculty of English, University of Cambridge, Cambridge, UK
e-mail: thalia.trigoni@cantab.net

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11, 15]. The portrait of the body that emerges from these studies is that of a coetaneous envelope that affects its content (conscious, mental cognition) and facilitates the workings of the mind. It is a body devoid of independence, governed by simple, mechanical principles. What we have failed to notice is that James' theory is far more complicated and radical than that. He articulates an ontological and aesthetic theory wherein the body is conceived of as capable of performing complicated forms of cognition even as it does not possess the conceptual apparatus of the discursive, conscious mind. Johnson, for instance, notes that "the principal problem with James's account is his use of agency terms, such as 'selects,' 'cuts,' and 'craves.'" (89) He finds James' use of active verbs in the description of the processes of the neural system to be misleading, as it can be understood to suggest a "'thing' that thinks" (90). However, this essay argues that rather than a misleading mistake on James' part, his use of language is underpinned by a theoretical framework that points at the personal volition and intelligence of the body.

In order to corroborate this thesis, I will be looking into various contexts, including James' notion of the selective nature of sensory perception that shapes experience, his distinction between percept and concept, and his theory of emotion. Another major context that provides valuable insight into James' aesthetics is the field of arts. In several places, James draws his readers' attention to music, sculpture, painting and literature in order to exemplify his theories. More specifically, I argue that James' theory that the neural system is capable of choosing certain beneficial sensations in order to achieve certain purposes invests the senses with personal volition. The attribution of independent perceptive activities to the bodily substrata elevates the status of the sense-organ from a mere receptor or filter of a given stimulus to an autonomous, cognitive mechanism. James' distinction between percepts and concepts provides us with another important intellectual framework within which to study the cognitive abilities of the body and the ways that these abilities affect the mind. Percepts are inextricably connected to the body and are juxtaposed to concepts, which are abstract and formulated by the discursive, conscious mind. For James, concepts are secondary and reductive, and their formation is fully dependent on percepts, which are more expansive and cognitively dynamic than concepts. James' famous theory of emotion springs from his radical re-conceptualisation of the body. The neural system's response indicates that a form of reasoning or evaluative process has been at work even though it does not fall within the bounds of mental, conscious thinking. James' appeals to music, sculpture, painting and literature operate as planes on which to map out his aesthetics and ontological outlook. These case studies help demonstrate how James' view of the body as an intelligent cognitive agent articulates an aesthetic theory wherein the body appears to have a much more powerful sway over the mind than we have hitherto been able to detect.

Body of Wisdom: Neural Action and Sensory Cognition

James was writing in a period when psychology was moving away from philosophy and toward the laboratory, resulting in a new alliance with physiology. As Gerald Myers suggests, "unlike B.F. Skinner's concept of psychology today, physiological

psychology in James's day required going 'under the skin.' […] James saw its [psychology] task as improving our knowledge of mind-body relationships by drawing upon the new science of human physiology." ([12]: 54) As it was a common practice among psychologists, James started his *Principles* with an analysis of the physical aspect of man. British physiologists in the nineteenth-century expanded the idea of reflex action and thoroughly analysed the nervous system. Under the rubric of "unconscious cerebration", William Carpenter (1813–1885) maintained that a large proportion of mental activity took place automatically [2]. In biology, notions of organic memory arose, based on Jean Baptiste Lamarck's (1744–1829) theory of the inheritance of acquired characteristics and Ernst Haeckel's (1834–1919) biogenetic law, according to which ontogeny recapitulated phylogeny. As Laura Otis writes in *Organic Memory*, "The theory of organic memory placed the past *in* the individual, *in* the body, *in* the nervous system; it pulled memory from the domain of the metaphysical into the domain of the physical […] it equated memory with heredity, arguing that just as people remembered some of their own experiences consciously, they remembered their racial and ancestral experiences unconsciously, through their instincts." ([13]: 3) Hermann Ebbinghaus's (1850–1909) work, which James characterizes as "a really heroic series of daily observations of more than two years duration", demonstrated that "association is subtler than consciousness, and that a nerve-process may, without producing consciousness, be effective in the same way in which consciousness would have seemed to be effective if it had been there." ([7]: 636, 638)

In James's theory of the neural system, we find the beginning of his belief in organic cognition. In the "The Functions of the Brain", James initiates his attempt to shed light on the workings of the nervous centres and their relation to consciousness. At first sight, James's insistence on neural action as an unconscious process seems to contrast sharply with his assertion that the nervous centres are "organs of consciousness" ([7]: 85). We are caught in what might sound like a paradox because, on the one hand, neural action is regarded as unconscious, but on the other, it is seen as an organ of consciousness. As we will see, rather than a paradox or inconsistency, James suggests that the unconscious processes performed by the nervous centres have a consciousness of their own.

According to James, the human neural system is capable of both choosing certain beneficial sensations and of retaining a memory of them in order to reactivate them in their absence: "They [nervous centres] feel, prefer one thing to another, and have 'ends.'" ([7]: 85) Having specific "ends" presupposes a purpose to achieve, an end to reach: it demonstrates personal volition or, as James notes, a will of its own, a characteristic traditionally attributed to consciousness. They "identify in memory any motor discharges which may have led to such ends, and associate the latter with them, then these motor discharges themselves may in turn become desired as *means*." ([7]: 85) The nervous centres that can perform these selective processes pass on to the more intellectually developed hemispheres and, accompanied by consciousness, they perform the operations of thought. James notes that in more developed animals, like humans and monkeys, it is mainly the neural system that executes the thinking processes, with a small contribution by the basal ganglia (cerebral hemispheres that are involved in the regulation of voluntary movement),

whereas in less evolved species the thinking process is predominantly done by the basal ganglia. The nervous centres are also responsible for "the education of our human hemispheres" in that they regulate "the acquisition of memories and associations which may later result in all sorts of 'changes of partners' in the psychic world." ([7]: 86) For example, the original tendency of the baby to touch a candle is inhibited by the image of the burn left in the cortex that excites the tendency to withdraw the next time a candle is perceived. This is exemplary of the education that the nerve centres attain through an association of pain with the candle. Thus, early on in his *Principles*, James draws attention to the nervous system's capacity to formulate intentions.

A central thematic section which will help clarify James's understanding of the body is his "Automation Theory", as it focuses on the autonomy and role of the nervous system. From the beginning of the chapter, James states his anti-Cartesian stance. Descartes attributed a self-sufficing nervous mechanism to animals but in man, he claimed, the higher acts are performed by the rational soul; a distinction that James condemned as a "singularly arbitrary distinction" ([7]: 134). The role of the physical aspect is so defining that James suggests that the totality of our cognitive processes could be purely physical: "What is there to hinder us from supposing that even where we know consciousness to be there, the still more complicated neural action which we believe to be its inseparable companion is alone and of itself the real agent of whatever intelligent deeds may appear?" ([7]: 133) He further argues that, if we identify the spinal cord, for instance, as an organ with few reflexes, we can also claim that, through the principle of continuity, the hemispheres are organs with many reflexes that are awakened in a "rational and orderly sequence" by the sense organs ([7]: 133).

The sense organs also exhibit the ability to comprehend and execute orders selectively. They can be "blind or deaf to a certain person in the room and to no one else" ([7]: 208). James refers here to an experiment which reveals the perceptive activity of the secondary, somatic consciousness in cases of systematic anaesthesia. The psychologist makes a stroke on paper or blackboard and tells the subject that the stroke is not there. The researcher attempts to convince the subject that s/he only sees a clean paper/notice board. When the psychologist encircled the original stroke with other strokes, the subject was unable to see the original one. During the same experiment, however, the psychologist used a prism which enabled the subject to see the stroke. Thus, whereas the subject could see the stroke through the prism, s/he was still unable to see the original stroke. According to James, this is an instance that demonstrates the ability of the senses to perform judgements, since "He [the subject] discriminates it [the stroke], as a preliminary to not seeing it at all […] He is blind only to one individual stroke of that kind in a particular position on the board or paper" ([7]: 209). James's view of the senses as a selective thinking mechanism, a mechanism that is nevertheless conscious of its own cognitive processes, differs largely from previous explications of the matter as a mere biological deficiency of the eye itself ([7]: 209). "Paradoxical as it may seem to say so", James contends, this processes is something "much more complex; namely, an active counting out and positive exclusion of certain objects" ([7]: 209). Accordingly, the

body, in James' ontological outlook, is an active cognitive agent that can perform judgments separate from conscious processes.

Likewise, in instances "when one 'cuts' an acquaintance, 'ignores' a claim, or 'refuses to be influenced' by a consideration'", s/he is dealing with an unconscious judgment and exclusion ([7]: 209). For James, this unconscious cognitive process is autonomous and distinct from conscious reasoning processes: "But the perceptive activity which works to this result is disconnected from the consciousness which is personal, so to speak, to the subject, and makes of the object concerning which the suggestion is made, its own private possession and prey" ([7]: 209). The attribution of independent perceptive activities to the bodily substrata elevates the status of the sense-organ from a merely passive receptor to an independent mechanism that functions in ways that run parallel to those of conscious mentality. The body influences the mind without its being aware of the control that is placed upon it. The ability of the sense-organ to judge and filter what passes to the upper consciousness is clear if we consider the fact that when the new stroke is not a repetition of the initial one but is added to form "a total object, say a human face", "the subject may then regain his sight of the line to which he had previously been blind, by seeing it as a part of the face." ([7]: 209) Instances like these bespeak the sense organ's ability to judge when it should allow the consciousness to be aware of the existence of the stroke. James also provides us with the example of "mothers of infants, who will sleep through much noise of an irrelevant sort, but waken at the slightest stirring […] of the babe." ([7]: 199) In this case, the auditory sensibility manages to function independently and awake the conscious mind in case of need. There is a whole process at work regarding what seems to go unnoticed, which involves an unconscious decision making, leading James to assert that "*we must never take a person's testimony, however sincere, that he has felt nothing, as proof positive that no feeling has been there*" ([7]: 208). The feeling here represents the existence of another, bodily consciousness of which the primary one is unaware.

The Corporeal Roots of Thinking: From Percept to Concept

James' distinction between percepts and concepts provides significant insight into the notion that intelligence is primarily the product of somatic cognitive processes. He differentiates between the discursive intellect with its separating, categorizing functions, and the percept, which accesses the "passing pulses of our life." ([5]: 110)

Percepts perform cognitive functions of their own at an unconscious level. James describes it as a flow, profusion, the full self, a "much-at-once," and he asserts that instead of percept he will "often speak of sensation, feeling, intuition, and sometimes of sensible experience or of the immediate flow of conscious life." ([5]: 49, 48) Perceptual flux is formed by sensory data "merged in a general extensiveness of which each occupies a big or little share. Yet all these parts leave its unity unbroken." ([5]: 49) This mechanism is not a passive receptor of the experiential multiplicity, but it is a locus of novelty: "The percepts are singulars that change

incessantly and never return exactly as they were before. This brings an element of concrete novelty into our experience." ([5]: 98) Percepts, by accessing a pluralistic flux in which disparate realities coexist in loose relations, open up a space where genuine novelty can "leak in." ([5]: 132) James stresses the crucial role that percepts play in thought. Only by restoring the primacy of the percept will we adequately engage the full potentialities of our experiential life and open the path to cognitive change. Percepts, James argued, are more expansive and dynamic than concepts, for the latter offer only "post-mortem" reconstructions and build on the already known ([5]: 99). Percepts gather sensations and yield results, which are not simply a plenum of data, but information invested with a response. James articulates the independent reaction of the bodily mechanism which forms the basis for the discursive mind: Some parts of the stream of feeling must be more intense, emphatic, and exciting than others in animals as well as in ourselves; but whereas lower animals simply react upon these more salient sensations by appropriate movements, higher animals remember them, and men react on them intellectually, by using nouns, adjectives, and verbs to identify them when they meet them elsewhere ([5]: 48). What the discursive mind chooses to single out and turn into an abstraction is the natural outgrowth of a bodily selective process. The object of abstraction and conceptualization is defined by the result of the perceptual flux. Percepts form what James calls a "sensible muchness," which "shows duration, intensity, complexity or simplicity, interestingness, excitingness, pleasantness or their opposites." ([5]: 50, 49) Percepts and their selective character define the object of investigation of the mind. The mind picks out and abstracts elements based on the bodily criteria and responses like "excitingness, pleasantness or their opposites" ([5]: 49).

Since concepts emerge after singling out and isolating what is provided by percepts, they cannot bring about any originality: "This novelty finds no representation in the conceptual method, for concepts are abstracted from experiences already seen or given, and he who uses them to divine the new can never do so but in ready-made and ancient terms." ([5]: 98–9) To prove the primacy of the percept James demonstrates "1. That concepts are secondary formations, inadequate, and only ministerial; and 2. That they falsify as well as omit, and make the flux impossible to understand." ([5]: 79) Concepts are presented as passive recipients of the products of a complicated physiological process, "[they] are fixed, even though they designate parts that move in the flux; they do not act" ([5]: 82). James asserts that concepts are "post-mortem preparations, sufficient only for retrospective understanding; and when we use them to define the universe prospectively we ought to realize that they can give only a bare abstract outline or approximate sketch, in the filling out of which perception must be invoked." ([5]: 99) He thereby criticizes the overreliance on concepts and stresses the damaging effect it can have in philosophy: "instead of seeing that the fault is with the concepts, it blames the perceptual flux." ([5]: 84) Western thought, he argues, overvalues the concept, forgetting or missing its secondary, derivative, necessarily reductive nature and treats senses as "organs of wavering illusion that stand in the way of 'knowledge,' in the unalterable sense of that term. They are an unfortunate complication on which philosophers may safely turn their backs." ([5]: 75) Thus, James inverts the order of "The Platonizing

persuasion," which assumes "that the intelligible order ought to supersede the senses rather than interpret them." ([5]: 75) Intellectualism conceives of knowledge as distinct from the experiential domain: "The farther we push it, the more we learn *about* our subject of discourse, and we end by thinking that knowing the latter always consists in getting farther and farther away from the perceptual type of experience." ([5]: 83) James describes the way intellectualism undermines its own purpose: "Intellectualism draws the dynamic continuity out of nature as you draw the thread out of a string of beads." ([5]: 86) Instead he proposes that philosophy should: "Use concepts when they help, and drop them when they hinder understanding; and take reality bodily and integrally up into philosophy in exactly the perceptual shape in which it comes." ([5]: 95) Concepts should emerge as the abstractions of the data and the selection that is yielded by the biological processes that took place.

The thrust of James's argument is not to abandon concept for percept but rather to grasp, in the complexities of our cognitive processing, their imbricated, reciprocal relations. He asserts that both concepts and percepts are indispensable to the thinking process, which is formed by their interaction: "Percepts and concepts interpenetrate and melt together, impregnate and fertilize each other. Neither, taken alone, knows reality in its completeness. We need them both, as we need both our legs to walk with." ([5]: 53) Concepts, according to James, have practical advantages, as their function is to "*harness* perceptual reality […] in order to drive it better to our ends." ([5]: 65) He formulates his "pragmatic rule" that becomes a criterion to judge the advantage of a concept according to which "the better we understand anything the more we are able to *tell about it*." The only valuable criterion to judge a concept is whether it makes us understand our percepts better, by "knowing *what* these are, we can tell all sorts of farther truths about them, based on the relation of those whats to other whats" ([5]: 65). The conceived order is therefore based on and theoretically explains the perceived order; it "is only a system of hypothetically imagined *thats*, the *whats* of which harmoniously connect themselves with the *what* of any *that* which we immediately perceive." ([5]: 66) Accordingly, for James the foundation of cognition lay with percepts which concepts theorize and abstract. Concepts are therefore descendant abstractions: "All conceptual content is borrowed: to know what the concept 'color' means you must have *seen* red or blue, or green." ([5]: 79–80) James gives primacy to perceptual knowledge, which becomes the locus of immediate apprehension that evades conscious reason. Consequently, for James, "Conceptual knowledge is forever inadequate to the fullness of the reality to be known." ([5]: 78)

The perceptual flux emerges as indispensable to cognition as it shapes the basis that concepts lay on: "Conception is a secondary process, not indispensable to life. It presupposes perception, which is self-sufficing, as all lower creatures, in whom conscious life goes on by reflex adaptations, show." ([5]: 79) James' friend and colleague, C.S. Peirce (1839–1914), in his attempt to clarify what the "meaning" of a concept is, or in other words what kind of "logical interpretant" is its meaning, distinguished his pragmatism from that of James: "he does not restrict the 'meaning,' that is the ultimate logical interpretant, as I do, to a habit, but allows percepts, that is, complex feelings endowed with compulsiveness to be such." ([14]: 494) An

attempt to explain concepts and establish the "signs" from which they emerged in the perceptual field leads us to percepts. (475) James attributes meaning and logic to percepts, that is, to the affective and spontaneous dimension, which are abstracted and used in discourse in the form of concepts. The core of James' distinction between concept and percept lies in asserting the cognitive role of sensations, and therefore the impossibility of concepts to bring about novelty: "'The insuperability of sensation' would be a short expression of my thesis." ([5]: 79) James contrasts the fixed, stationary nature of the concept, or abstract thought, with the transience, fluidity, and mobility of the percept. Concepts, he states, in substituting truth for reality, selectively map and reductively circumscribe the fullness of our experience. Our conceptual understanding, which explains by "deducing the identical from the identical," can name new forms, but only in the terms of the already known, so that "if the world is to be conceptually rationalized no novelty can really come." ([5]: 152) In contrast, percepts have a separate and distinct function; through their connection with the perceptual flux they "yield a perfect effervescence of novelty all the time." ([5]: 151) James reverses the primacy that the intellect has received and places the wisdom of the body at the core of cognition and foundation on which the mental domain is founded.

The Cognitive Emotion

According to James, emotion's felt nature is due to felt bodily events, and the felt emotion cannot occur until those events are caused by the perception. In James' theory, what has been axiomatically labeled as instinctual *re*action, as opposed to cognitive action, is invested with qualities or faculties typically found in the sphere of conscious mentality.

For James, the bodily "seat" of emotions is located in motor and sensory processes of the same sort that underlie our perceptual experience ([7]: 235). He conceived of emotions, like perceptions, as afferent bodily processes, objecting to the idea of emotion as a primarily mental product:

> Common-sense says, we lose our fortune, are sorry and weep; we meet a bear, are frightened and run; we are insulted by a rival, are angry and strike. The hypothesis here to be defended says that this order of sequence is incorrect, that the one mental state is not immediately induced by the other, that the bodily manifestations must first be interposed between, and that the more rational statement is that we feel sorry because we cry, angry because we strike, afraid because we tremble, and not that we cry, strike, or tremble, because we are sorry, angry, or fearful, as the case may be. Without the bodily states following on the perception, the latter would be purely cognitive in form, pale, colorless, destitute of emotional warmth. ([7]: 1065–66)

In his famous example of the bear, James invites us to consider the emotion of fright. According to common sense and traditional psychology, the perception of the bear causes the feeling of fright, which is purely mental and independent of physiological events. Any associated physical changes, such as running, sweating,

heightened blood-pressure, palpitations, or trembling, are called the expressions or effects of the bodiless emotion of fright. Our common sense presumes that fright, considered as an exclusively mental or nonbodily state of consciousness whose nature is given to introspection, was immediately brought into existence by the perception, and then gave rise to the bodily effects or expressions. Pace these accounts, James stresses the impossibility to postulate an emotion without its bodily reverberations: "*If we fancy some strong emotion, and then try to abstract from our consciousness of it all the feelings of its bodily symptoms, we find we have nothing left behind*, no 'mind-stuff' out of which the emotion can be constituted, and that a cold and neutral state of intellectual perception is all that remains." ([7]: 1067) To illustrate his thesis, James noted that it would be impossible to think of an emotion of fear if "the feeling neither of quickened heart-beats nor of shallow breathing, neither of trembling lips nor of weakened limbs, neither of goose-flesh nor of visceral stirring, were present" ([7]: 1067). According to James, organic experience is the primary cause for the activation of emotions, not a conscious cognitive process: "Our natural way of thinking about […] emotions, is that the mental perception of some fact excites the mental affection called emotion, and that this latter state of mind gives rise to the bodily expression. My theory on the contrary, is that *the bodily changes follow directly the perception of the exciting fact, and that our feeling of the same changes as they occur* IS *the emotion*." ([7]: 1065) Fear, for instance, feels different from anger or love because it has a different physiological signature. The mental aspect of emotion, the feeling, is a slave to its physiology, not vice versa: we do not tremble because we are afraid or cry because we feel sad; we are afraid because we tremble and are sad because we cry. Inherent therefore in James's theory of emotions is the idea that sense perception responds to stimuli at a pre-conceptual stage, that is, before conscious cognitive processes have been involved. This response indicates that a form of reasoning or evaluative process has been at work even though it does not fall within the bounds of discursive thought.

According to James emotions are rooted in processes taking place in the motor and sensory centers. For James what is of interest is the physical unconscious response to stimuli. He stresses that the word "run" must "stand for what it was meant to stand for, namely, for many other movements in us, of which invisible visceral ones seem by far the most essential […] Whatever the fear may be in such a case, it is not constituted by the voluntary act." ([6]: 352) So emotion is some feeling of bodily, organic change which is performed independently from consciousness. James placed the emotional process in the motor-sensory system attributing their origin to a physiological mechanism similar to the one used by ordinary perception:

> An object falls on a sense-organ, affects a cortical part, and is perceived; or else the latter, excited inwardly, gives rise to an idea of the same object. Quick as a flash, the reflex currents pass down through their preordained channels, alter the condition of muscle, skin, and viscus; and these alterations, perceived, like the original object, in as many portions of the cortex, combine with it in consciousness and transform it from an object-simply-apprehended into an object-emotionally-felt. No new principles have to be invoked, nothing postulated beyond the ordinary reflex circuits, and the local centres admitted in one shape or another by all to exist. ([7]: 1087)

James analyses here the way that bodily processes respond to the environment and the way that ideas and consciousness rise out of this process. These internal bodily changes cause responses like running or crying, and without them no emotion of fear or sorrow can occur. Emotions emerge as the direct cause of running or crying. James' aim here is to prove that the origin of the emotion does not bear any relation to the mental domain: "An emotion of fear, for example, or surprise, is not a direct effect of the object's presence on the mind, but an effect of that still earlier effect, the bodily commotion which the object suddenly excites." ([9]: 131) James states that feelings in general are caused by the continuous flow of visceral, sensorimotor and affective responses: "whatever moods, affections, and passions I have are in very truth constituted by, and made up of, those bodily changes which we ordinarily call their expression or consequence." ([7]: 1068) Enabling our adjustment to the environment, emotions are not only a proof of the way embodied cognition can influence conscious activity and initiate thought on its own, but also of the way mental life is "knit up with our corporeal frame" ([7]: 1082). The primacy James placed to the body led many critics to characterize him a materialist, failing to conceive his radical re-conceptualization of the body. Myers, for instance, wonders whether James "was disposed to downgrade emotions in his mental hierarchy by construing them as purely physical." Myers finds this position "surprising given his lifelong dislike of materialism and mechanism." ([12]: 234) James, however, had warned that philosophers might assume his view to be materialistic because it made emotions contingent on afferent impulses or the incoming currents associated with sensations. Philosophical prejudice, according to James, has resulted in according a low status to sensations, as compared with thought and will and has thus kept us blind to the cognitive processes performed by the body. He states his wish to recover physiology from the negative connotations it had received: "They carry their own inner measure of worth with them; and it is just as logical to use the present theory of the emotions for proving that sensational processes need not be vile and material, as to use their vileness and materiality as a proof that such a theory cannot be true." ([7]: 1069) In order to avoid confusion, it is significant to note that James' theory does not define emotions as bodily events, but as the effect, or product, of bodily events, moving away from charges of a materialistic theory. James' concept of emotion is thus consistent with his lifelong antimaterialistic stance.

In the set of objections that James appends in his thesis on emotions, the first one he addresses is the lack of evidence to prove that certain perceptions produce bodily effects antecedent to the arousal of an emotion. James' response involves examples in which the ability of the body to think independently from the conscious mind becomes overt:

The best proof that the immediate cause of emotion is a physical effect on the nerves is furnished by *those pathological cases in which the emotion is objectless*. One of the chief merits, in fact, of the view which I propose seems to be that we can so easily formulate by its means pathological cases and normal cases under a common scheme. In every asylum we find examples of absolutely unmotived fear, anger, melancholy, or conceit; and others of an equally unmotived apathy which persists in spite of the best of outward reasons why it should give way ([7]: 1073–74).

Pathological cases verify the validity of James' theory because they do not involve a reaction to stimuli, but they are produced solely by physiological processes that act independently. James argues that his theory holds true even for emotions that are not intentional in the sense of being directed towards an object like the fear of a bear or being angry at someone. Rather than challenging his theory, objectless emotions provide further proof of his theory that emotions are purely physiological in origin, that they are an effect suggestive of the body's intelligence. James did not believe that all emotions are intentional and further elaborated on the physiological causes that bring about a positive or negative temperament. "In the unhealthy-minded" individuals, morbid emotions are mainly "bodily discomforts not distinctly localized by the sufferer, but breeding a general self-mistrust and sense that things are not as they should be with him." Likewise, "in the healthy-minded, […] the sensations that pour in from the organism only help to swell the general vital sense of security and readiness for anything that may turn up." ([9]: 133)

James' theory of emotion is based on his conception of the sentient body as a cognitive mechanism rather than a merely experiential foundation. Thought is only the end result of complicated physical processes: "cognition in this view is but a fleeting moment, a cross-section at a certain point of what in its totality is a motor phenomenon." ([7]: 941) James' theory of emotion proves that it is its bodily basis that invests our choices and reactions with meaning, it gives "*a still higher degree of reality to whatever things we select and emphasize and turn to* WITH A WILL. These are our *living* realities" ([7]: 926). On the contrary, "[A]s bare logical thinkers, without emotional reaction", James asserts, we "give reality to whatever objects we think of, for they are really phenomena, or objects of our passing thought, if nothing more." ([7]: 925) Without these bodily responses to the world, he continues, the world itself begins to appear unreal, as if there were "a wall between me and the world", as if I were "sheathed in India Rubber" ([7]: 927, 272).

The Aesthetics of Rationality

As we saw at the beginning of this chapter, James conceived of "our very senses themselves [as] organs of selection" that shape experience by choosing only certain ranges of stimuli and turning them into sensations ([7]: 273). This process can be paralleled to artistic creation and appreciation. James asserts that we only notice stimuli which "happen practically or aesthetically to interest us, to which we therefore give substantive names, and which we exalt to this exclusive status of independence and dignity." ([7]: 274) The mind shapes, uses and combines the "data chosen" from the lower levels ([7]: 277). "In the senses", he explains, "an impression feels very differently according to what has preceded it; as one color succeeding another is modified by the contrast, silence sounds delicious after noise, and a note, when the scale is sung up, sounds unlike itself when the scale is sung down" ([7]: 228). Aesthetic selective shaping is what enables the transformation of sensations into

perceptions and then of perceptions into object properties. James further holds that aesthetic and practical factors shape our reality: "*Out of all the visual magnitudes of each known object we have selected one as the* REAL *one to think of and degraded all the others to serve as its signs.* This 'real' magnitude is determined by aesthetic and practical interests. It is that which we get when the object is at the distance most propitious for exact visual discrimination of its details." ([7]: 817) The real properties of things are therefore based on aesthetic and practical characteristics as a way to categorize and distinguish certain objects out of the perceptual multitude. Similarly, "*when two sensorial sense-impressions, believed to come from the same object, differ, then* THE ONE MOST INTERESTING*, practically or æsthetically,* IS JUDGED TO BE THE TRUE ONE." ([7]: 818) Processing the innumerable impressions, the senses engage in a process of elimination in order to distinguish the most aesthetically and practically appealing characteristics of an object. For instance, "The real color of a thing is that one color-sensation which it gives us when most favorably lighted for vision. So of its real size, its real shape, etc.—these are but optical sensations selected out of thousands of others, because they have aesthetic characteristics which appeal to our convenience or delight." ([7]: 934). What defines certain properties as practical or convenient are aesthetic qualities like clearness or vividness, which allow us to turn to these objects that bear the specific properties when needed. This principle, however, does not only apply to this primary classification. Aesthetic qualities, according to James, also determine the choice of scientific theories: "*That theory will be most generally believed which, besides offering us objects able to account satisfactorily for our sensible experience, also offers those which are most interesting, those which appeal most urgently to our aesthetic, emotional, and active needs.*" ([7]: 940) Building on this initial selection process performed by the senses, the aesthetic principle defines "our intellectual as well as our sensuous life." ([7]: 943) In addition to the first aesthetic principle that James singled out as clarity, James distinguished between "the two great aesthetic principles, of richness and of ease". According to James, theories that are widely acceptable are "rich, simple, and harmonious" ([7]: 943). "The richness", James continues, "is got by including all the facts of sense in the scheme; the simplicity, by deducing them out of the smallest possible number of […] primordial entities." Simplicity provides the aesthetic "law of least effort" because it tends to make things as "definite as possible." ([7]: 944) Accordingly, the aesthetic criteria overlap with the practical ones James' definition of simplicity as the "law of least effort" also amounts to a practical criterion. In other instances, however, the two are clearly distinguished. Philosophy, for example, emerges from an aesthetic drive of "scientific curiosity" or "metaphysical wonder" with which "the practical […] has probably nothing to do […] The philosophic brain responds to an inconsistency or a gap in its knowledge, just as the musical brain responds to a discord in what it hears." ([7]: 1046) The pleasures of philosophical thinking are therefore like "many other aesthetic manifestations, sensitive and motor" ([7]: 1046). For James, philosophy springs from a feeling of pleasure or discord which is the initial, bodily response which the philosopher consequently elaborates and expresses in discourse. The Jamesian conception of the aesthetic is distanced from the abstract theorizing

of fine art or the appreciation of beauty. He notes that "no good will ever come to Art as such from the analytic study of Aesthetics, harm rather, if the abstractions could in any way be made the basis of practice" ([8]: 475). For James, discourse is unable to represent adequately aesthetic impressions. He is thus particularly critical of German philosophers and their conceptual theorizations: "Why does the *Aesthetik* of every German philosopher appear to the artist like the abomination of desolation?" he asks, and notes that the error of such an approach is that it distances itself from the sensational terms that aesthetics spring from and rather relies on an abstractive "system of categories" of inert, "gray monotony" ([6]: 122–23).

The very same experience, for James, could be rational, practical, and aesthetic. The aesthetic in James' ontology comes to signify the ability of the body to respond to its environment according to what is beneficial for the organism. James reformulated the mind/body problem by giving primacy to the somatic and treating the mental sphere as anterior, since it responds and builds on the choices made by the somatic. Rather than relating the sensational terms with the subjective element in experience, James associated them with objectivity and asserted that it is an aesthetic process that shapes our experience and defines objects as "REAL". In "The Sentiment of Rationality," James relates logic with the affective dimension making sentiment the "mark" of rationality. Aesthetic selection therefore shapes experience and its marks include a "strong feeling of ease, peace, rest", and a "feeling of the sufficiency of the present moment" a "loyalty to clearness and integrity of perception" ([4]: 63, 64, 66). The aesthetic is not simply conceived as facilitating logic but becomes a principle to judge what is logical: "of two conceptions equally fit to satisfy the logical demand, that one which awakens the active impulses, or satisfies other aesthetic demands better than the other, will be accounted the more rational conception, and will deservedly prevail." ([4]: 75–76) The feeling of rationality therefore is maintained by a bodily selective process whereby objects are "approved or rejected by our aesthetic and practical nature" ([4]: 76).

James distinguishes between the "coarse" and "subtler emotions." ([7]: 1082) The former, which include the emotions of rage, fear and love, are characterized by an overt physiological manifestation. The latter, which include the "aesthetic emotions," are characterized by a physiological activity which is not as distinctly felt as in the case of the coarse emotions. James analyses aesthetic emotions to demonstrate that their source lies in the "widespread bodily effects by a sort of immediate physical influence, antecedent to the arousal of an emotion or emotional idea" ([3]: 196). James exemplifies here his anti-materialistic stance as he asserts that the body produces an "emotional idea," reversing in this way the commonly held notion that an idea can only be a mental product. He further distinguishes between "primary" and "secondary" aesthetic emotions. The former is defined as the "simple primary and immediate pleasure [caused by] certain pure sensations and harmonious combinations of them" ([7]: 1083). The "primary pleasure" is caused by the direct impact that the object has on the optic receptors and/or auricular receptors: "[T]he pleasure given us by certain lines and masses, and combinations of colors and sounds, is an absolutely sensational experience, an optical or auricular feeling that is primary" ([7]: 1082). The "primary" emotions originate in an optical

or auricular perception which causes instantly bodily changes. According to James, what makes art so aesthetically appealing is the pleasing effect it has on "the bodily sounding board" ([3]: 202). The response to art forms, like poetry, drama or music, should not rely, according to James, on critical reflection which is based on an elevated class of abstractions. Instead, he asserts that our response to art involves physical modifications which precede our conscious response. An aesthetic judgment is primarily, according to James, a somatic response, the result of perception that causes pleasure or displeasure.

The "secondary" aesthetic emotions involve a more complicated, subtle response that builds on the "primary" aesthetic emotions. As James asserts, the "secondary" emotions occur through a "repercussion backwards [to the physiological level] of other sensations elsewhere consecutively aroused," by an emotion pure and simple ([7]: 1083). These secondary pleasures extend to the physiological level, causing "a glow, a pang in the breast, a shudder, a fullness of the breathing, a flutter of the heart, a shiver down the back, a moistening of the eyes, […] and a thousand unnamable symptoms besides, may be felt the moment the beauty *excites* us" and fills us with pleasure ([7]: 1084). The "*added* secondary pleasures" involve a more complicated bodily response and play a great part in formulating "the practical enjoyment of works of art by the masses of mankind" ([7]: 1083). In James' words, "In listening to poetry, drama, or heroic narrative, we are often surprised at the cutaneous shiver which like a sudden wave flows over us, and at the heart-swelling and the lachrymal effusion that unexpectedly catch us at intervals. In listening to music, the same is even more strikingly true." ([7]: 1072) These physiological responses are felt, but still not as strongly as the feelings that characterize the coarser emotions, as an addition upon the feelings of the immediate, purely perceptual response.

James illustrates the difference between the primary and secondary emotions by using as an example two different artistic styles. He distinguishes between a "classic" and a "romantic" taste to reveal the way that aesthetic intelligence defines the cognitive processes of receiving and appreciating art. With regards to the former, the pleasing sensation comes as an immediate enjoyment after the perception of "certain lines and masses, and combinations of colors and sounds" ([7]: 1082). The latter type of taste involves a process whereby secondary emotions prevail and are manifested in the form of a physiological "repercussion," stirred by an aesthetic emotion pure and simple. A "secondary pleasure" is an extension beyond the primary initial pure or classical pleasure of the raw perceptual sensations of, for instance, a painting, and an expansion in a physiologically overt way on the effects of the raw perception and which result in an increase in our heartbeat and pulse rate, or some constriction around the heart or rib cage. "Secondary pleasures" involve more intricate bodily processes, a "complex suggestiveness" and "the awakening of vistas of memory and association". Someone with a romantic taste would perceive a painting as gloomy or mysterious or haunting, and assert that this complex "repercussive" reaction, is the suitable reaction and treat the "simple and pure" reaction as aesthetically "dry and thin" and "less relatively important" ([7]: 1083–84).

This chapter has focused on a topic that has been unduly neglected: James' radical theory of the body's cognitive abilities. While there has been much research on

James' theory of the powerful sway that emotions can have on the mind, there is hardly any work on the cognitive physiological processes that give rise to those emotions and their subsequent role in discursive reasoning. In James' works, we witness a body that is invested with a will of its own that defines, through a selection process, the information and qualities of an object that the mind receives and to which it applies its conceptual apparatus; a body whose complicated forms of thinking provide the mind with emotional and cognitive products which it attempts to explicate through discourse; a body whose role in novelty takes precedence over rational thought; a body, Johnson noted, that "selects," "cuts," and "craves"; a body that is presented as a "'thing' that thinks" ([10]: 89, 90). According to James' theory, the body is not simply a cutaneous envelope that affects the mind in many ways, but it is also an intelligent agent into the cognitive processes of which the mind has no access. In short, it is also a sealed envelope whose cognitive contents require further exploration, supplementation and elaboration.

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Chapter 5
Ecological Embodiment, Tragic Consciousness, and the Aesthetics of Possibility: Creating an Art of Living

Tanya Jeffcoat

Abstract John Dewey, best known as a philosopher of education, continually attacks the dualisms presupposed in many philosophical writings, especially those that separate humans from nature, individuals from society, and the mind from the body. This chapter will build upon Dewey's writings to support four primary claims. First, it will argue that the individual is best understood in ecological terms that emphasize human embodiment within larger biological and social environments that extend globally and beyond. Second, understanding the implications of our ecological embodiment often leads to the development of a "tragic consciousness" as we become aware of our precariousness in light of the dangers within the systems of which we are a part. Third, tragic consciousness can undermine personal and social action, particularly when individuals suspect that their actions are insufficient to solve the problems facing them, whether locally or globally. Finally, this chapter will argue for the need of an aesthetics of possibility and an art of living that responds to our existential realities while cultivating meaning and working to enrich our lives. In doing so, it will draw upon not only John Dewey's works, but also those of Thomas Alexander.

Keywords John Dewey • Functionalism • Tragic consciousness • Ecological embodiment • Aesthetics of possibilities

The American philosopher John Dewey presents a version of the individual that stands in stark contrast to the mind/body dualism of Descartes, but he goes even further by denying a sharp division between the individual and the environment. For Dewey, the mind-body problem arises when we reify aspects of what is actually an embodied "complex of events that constitute nature," thus treating mind and matter as "static structures instead of functional characters" (LW 1: 66). But Dewey's functionalism goes further, for he argues that the individual exists both within and as

T. Jeffcoat (✉)
EDGE Resident Master, University of Central Arkansas, Conway, AR, USA
e-mail: tjeffcoat@uca.edu

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part of an environment. This ecological understanding of embodiment takes into account both the biological as well as cultural features of experience, for individuals exist within a dynamic web of human and non-human, as well as physical and cultural relationships [3]. Instead of being separate and distinct, the individual appears as embedded within a network of relationships but capable of reshaping those relationships through active engagement with and within the local environment. This model situates individuals and reinforces the importance of local engagement. However, a fully developed understanding of ecological embodiment also strengthens our "tragic consciousness," as we become ever more aware of the extent of our precariousness, especially in light of global warming, mass extinctions, world-wide economic stress, and failing educational systems. Such a consciousness can undermine personal and social action, particularly when individuals suspect that their actions are insufficient to solve global problems. But if Thomas Alexander is correct when he argues that the "ultimate task of human existence is cultivation, the civilization of our natural capacities toward the fulfillment of life," ([1]: 276), then we need an aesthetics of possibility and an art of living that responds to our existential realities while cultivating meaning and working to enrich our communities, the individuals within them, and the broader biological and cultural environments which constitute and is constituted by both.

The chapter will fall into three sections. The first will focus upon ecological embodiment and how such a model might influence conceptions of identity, responsibility, and inquiry. The second section will address the tragic consciousness that arises from recognizing human embeddedness within numerous precarious systems and how to avoid turning from tragic consciousness to a fatalistic resignation or supernaturalism, both of which undermine effective engagement. The third section will argue (following Thomas Alexander) that an aesthetics of possibility will allow for this tragic consciousness to be transformed into an art of living that emphasizes the connections among individuals, communities, and larger environments. Such an art of living deepens connections while encouraging effective criticism and appropriate habit formation. It calls upon individuals to see beyond the often overwhelming problems and to find opportunities for growth toward an ideal, what Alexander calls seeing "the actual in light of the possible" ([2]: 136). As Alexander says, "To treat life artistically is to exercise both imagination and reflection toward the exploration of the possibilities of the present" ([1]: 269). An ecological understanding of embodiment emphasizes our precariousness and calls forth tragic consciousness, but it also situates us in a dynamic matrix ripe for artistic living.

Ecological Embodiment

While Dewey does not use the term "ecological individual" in his writings, the phrase does capture the transactional nature of human existence that he emphasizes throughout his works. For instance, in *Unmodern Philosophy and Modern Philosophy*, Dewey

states that "the terms organism-environment are simply generalized names which serve to summarize, condense, unify, a large number of particular interactivities, such as air-respiratory processes, ground-locomotor apparatus, food-stuffs-digestive-tissues, etc. They do not stand for two separate and independent things which then somehow come into connection with one another and produce life-functions." Instead, life is transactional, where "'life' is not entity or force"; instead, "life is living, and living consists of a number of interrelated activities or functions in which environing energies are operatively involved" ([4]: 322).

This idea appears again in *Human Nature and Conduct*, where he calls for his readers to rethink basic bodily functions with this fact in mind:

> Breathing is an affair of the air as truly as of the lungs; digesting an affair of food as truly as of the tissues of the stomach. Seeing involves light just as certainly as it does the eye and optic nerve. Walking implicates the ground as well as the legs; speech demands physical air and human companionship and audience as well as vocal cords. We may shift from the biological to the mathematical use of the word function and say that natural operations like breathing and digesting, acquired ones like speech and honesty, are functions of the surroundings as truly as of a person. They are things done *by* the environment by means of organic structures or acquired dispositions. (MW 14: 15)

In fact, Dewey so incorporates the individual and the environment that he speaks of "their undifferentiated unity," although not "their unification" (MW 13: 377). Every individual is part of the larger environment and is an expression of the environment without becoming a mere element of the environment. Instead, the individual takes up the environment, actively shaping the world in the processes of living. Each individual exists as a function within a larger complex system, uniquely contributing to the whole in making it what it is.[1]

For Dewey, a function is "[a]ny process sufficiently complex to involve an arrangement or coordination of minor process which fulfills a specific end in such a way as to conserve itself" (MW 6: 466). However, these functions are not isolated but work together within a larger system, whether in the way in which the digestive and circulatory systems work together within an individual or the way in which communities work together within a city. For Dewey, "The sum total of functions, in their reciprocal adjustment to one another constitute life, which accordingly, is defined in the same way as a function" (MW 6: 477). An individual appears as the sum total of a number of functions (digestion, circulation, hormonal, etc.) while simultaneously functioning as one element within a larger environment, unique yet interconnected and always influencing the larger whole. As Dewey says, "living as an empirical affair is not something which goes on below the skin-surface of an organism; it is always an inclusive affair involving connection, interaction of what is within the organic body and what lies outside in space and time, and with higher organisms far outside" (LW 1: 215).

Throughout his writings, Dewey emphasizes the continuity between the individual and natural processes, and this continuity exists not just for the individual in its biological environment but in its culture as well: "As the developing growth of an

[1] My thanks to James Garrison for pointing me toward Dewey's discussion of functions and how it applies to my project. Dwayne Tunstall was likewise helpful in pointing me to Garrison's work and in serving as a sounding board for several of my ideas.

individual from embryo to maturity is the result of interaction of organism with surroundings, so culture is the product not of efforts men put forth in a void or just upon themselves, but of prolonged and cumulative interaction with environment" (LW 10: 34–35). Thus, biological relations are not the only ones that circumscribe and interpenetrate the individual since the individual exists within a social milieu as well: "individuality is not originally given but is created under the influences of associated life" (MW 12: 193). People learn to be human, which is "to develop through the give-and-take of communication an effective sense of being an individually distinctive member of a community; one who understands and appreciates its beliefs, desires and methods, and who contributes to a further conversion of organic powers into human resources and values" (LW 2: 332). Individuals can lead mechanized, unfulfilling lives, and they can go so far as to isolate themselves from community, but they will carry the imprint of that community wherever they go (LW 7: 323). As Dewey says in "Individuality in Education," "there is an idea that to develop individuality means a sort of isolation or separation of one person from another, something opposed to the community spirit. Robinson Crusoe did not cease to be a social individual just because he was by himself on an island. He had his memories, his expectations, his experiences, which had come from his former association with other people" (MW 15: 178–179). Individuals are born into a community and learn that community's values, language, and customs. While an individual may leave that community, she will carry with her features of that community for the rest of her life.

According to the ecological model, there is no hard break between individuals, or between nature and individuals or nature and society. An individual's skin serves as a convenient demarcation for identity, in the same way that a river may serve as a boundary line between two farms; however, the boundary is a functional and a permeable one. Far from being distinct from nature, the individual exists as part of nature, taking in the air and nutrients of that environment and likewise releasing elements vital to natural processes. Regarding the community, an individual takes up, passes along, and transforms the languages, values, and perspectives of that community. Whether the emphasis is upon the biological or the cultural, an ecological model of the individual captures human interconnection within the dynamic matrix of life. By this model, rather than being autonomous, the individual appears as a nexus of relations within a broader environmental context—with environment being biological as well as cultural. The individual appears as "the unique overlap of interdependent processes defining" the individual's identity ([9]: 62) or as "a centered organization of energies," which is "the individual that belongs in a continuous system of connected events which reinforce its activities and which form a world in which it is at home" (LW 1: 180, 188).

While some might worry that such a model for the individual might undermine individual agency, Dewey emphasizes individual and environmental co-cultivation ([10]: 118, [5]: 378). With regard to the individual, he claims that:

> Individuality itself is originally a potentiality and is realized only in interaction with surrounding conditions. In this process of intercourse, native capacities, which contain an element of uniqueness, are transformed and become a self. Moreover, through resistances encountered, the nature of the self is discovered. The self is both formed and brought to consciousness through interaction with environment ….

> [T]he self is created in the creation of objects, a creation that demands active adaptation to external materials, including a modification of the self so as to utilize and thereby overcome external necessities by incorporating them in an individual vision and expression. (LW 10: 286–87)

It is actively taking up elements in the environment, determining what avenues to pursue and what to reject, that the individual individuates. Different individuals have different talents and face different challenges, and each has the ability to take up the local environment in unique ways, thereby crafting a unique self. The environment, by this way of thinking, does not subsume the individual but instead provides the matrix within which the individual can self-create. And in doing so, the individual reshapes the environment while self-creating. For Dewey, while "[t]he earth is the final source of all man's food…his continued shelter and protection, the raw materials of all his activities, and the home to whose humanizing and idealizing all his achievements return," "[t]he world without its relationship to human activity is less than a world" (MW 1: 13). Earth is home, but a home not separate from human endeavor, and individuality is inseparable from the world of which we are a part.

Although an ecological model of the individual does not undermine individual uniqueness or human agency, it does require a rethinking of responsibility. Understanding the individual in terms of individual autonomy emphasizes the separateness of individuals from one another and from the surrounding environment and thus reduces the number of relationships for which the individual is responsible. An ecological understanding of the individual, in contrast, emphasizes connectivity to both other humans and the larger environment and thus expands the relationships demanding individual care and responsibility. Even when the focus of responsibility is upon self-care, the ecological model expands at a breath-taking speed.

For instance, if the individual is embedded within an environmental frame and exists as a nexus of relationships within the environment, then caring for the self means caring for the relationships which constitute the individual's identity. When individuality is bound up together with the air breathed, the food eaten, and the communities shared, individual responsibility must include an ethics of care that includes environmental care. As James Garrison rightly observes, "The result is an ecological ethics of care wherein for the individuals to care for themselves they must care for their environs and to care for their environs they must care for themselves" [8].

This environmental-care/self-care, to be effective, requires the individual to reject the notion of being "outside and detached from the ongoing sweep of inter-acting and changing events…being there alone and irresponsible save to himself" (LW 1: 324), for:

> When he perceives clearly and adequately that he is within nature, a part of its interactions, he sees that the line to be drawn is not between action and thought, or action and appreciation, but between blind, slavish, meaningless action and action that is free, significant, directed and responsible. Knowledge, like the growth of a plant and the movement of the earth, is a mode of interaction; but it is a mode which renders other modes more luminous, important, valuable, capable of direction, causes being translated into means and effects into consequences. (LW 1: 324)

When individuals understand themselves as existing within and as a part of nature, dualisms (whether of mind and body or of human and nature) become impediments to knowledge and thus to effective action and self-care. Awareness of

individual embeddedness, combined with critical inquiry, deepens understanding and illuminates possibilities for individual and community alike. For instance, many of the chronic illnesses that individuals face are due to lifestyles out of step with the realities of human needs. While medications alleviate symptoms, lifestyle changes can be transformative to the individual, and (given the sheer numbers of chronically ill people) to communities. Such changes, however, require at least on some level for individuals to recognize that there is no separation between their activities and their conditions. Because transitioning from an undesirable condition to one more desirable requires behavioral changes within a dynamic and complex system, knowledge gained through critical inquiry is vital as something which allows individuals to recognize and analyze the problematic situation and develop a method of responding to that situation.

This inquiry occurs within a community, as individuals respond to situations and reach for information to guide them in making intelligent decisions. Some of this information comes to the individual by way of specialists and professional publications, but social conventions and "common knowledge" also serve as the background and matrix of inquiry. Critical inquiry is thus embedded within a matrix of cultural practices and taboos. Since scientific studies continually reveal new insights and community tastes change, commonly acceptable practices of one generation can become taboo in another, and former taboos can similarly become acceptable. Critical inquiry is ongoing, and because of its power to illuminate possibilities within actual lived circumstances, serves as a key component in the development of an art of living.

Tragic Consciousness

While critical inquiry provides a means to discover and create possibilities before us, it also calls attention to the extent of the suffering and hardships most people prefer to ignore for as long as is feasibly possible. Tragic consciousness is the recognition of both the extent and the depth of suffering in the world and the realization that most of this suffering will continue, despite our best intentions and hard work. Typical responses to tragic consciousness are either a resignation that undervalues the ability of humans to affect change and to make meaning out of the hard facts of existence or a supernaturalism that, for Dewey, provides a false hope while undermining the processes by which actual transformation might occur (LW 9: 31). Although an ecological understanding of the individual might lead to the development of a tragic consciousness, it also provides a basis for developing an art of living within a precarious and often tragic milieu.

Two examples suffice for illustrating ways in which critical inquiry might lead to tragic consciousness. At the personal level, imagine an individual whose neighbor has a young daughter who was sexually assaulted. In attempting to make sense of the crime, to determine how to help her neighbor, and to decide how best to protect her own child, the individual reaches for statistics on juvenile sexual assaults in the United States. She discovers that 15 % of sexual assault and rape

victims are under the age of 12, that 7 % of 5th–8th grade girls and 3 % of the boys, and 12 % of 9th–12th grade females and 5 % of the males have been victims of sexual assault, and that of these, 93 % knew their attackers [12]. Given the immediacy and nearness of the event, it is impossible for these to be mere statistics, in the way that most items on the evening news become disconnected events for most people until they hit close to home. Likewise, the nearness makes it impossible to believe that "those sorts of things" don't happen in her community, and it would be difficult for her to hold that her neighbor's child is the first such victim in her circle of acquaintances. While the parent has resources and options for responding to the event, the situation emphasizes the precarious nature of existence and the fact that though individuals might work to improve their odds in life, security and control are illusory, while tragedy is always a live possibility.

Critical examination of any aspect of the environment (in the usual way in which that term is used) can easily lead to tragic consciousness, especially when the interconnection of systems is taken into account so that the individual recognizes that problems in one area affect the viability of others. For instance, rising temperatures connect to drought, the spread of tropical diseases into areas previously unaffected, famine, and a decrease in biological diversity—all problems large enough when examined in isolation but overwhelming when taken together. Kenneth Stikkers perfectly expresses tragic consciousness when he says, "Existence is not merely *precarious*…it is disastrous; life does not merely teeter on the edge of a cliff; rather, from the beginning, it hurls headlong onto the rocks" ([14]: 65). It is no wonder than for many, fatalism and supernaturalism are typical responses.

Resignation is one typical response to tragic consciousness. When the problems facing humans seem overwhelming, many respond by deciding that individuals are powerless to fix the situation. Especially when possible solutions are hotly debated and require specialized knowledge, as do many problems facing our communities, the "average man gives it up as a bad job" (LW 2: 317). Dewey points to the "confusion which has resulted from the size and ramifications of social activities" that "has rendered men skeptical of the efficiency of political action," where individuals "feel that they are caught in the sweep of forces too vast to understand or master" (LW 2: 319). Distraction, by way of various forms of amusement, diverts attention from the psychological consequences of this resignation, but it does little if anything to effect change for the better (LW 2: 321). When the entertainment ends, tragic consciousness remains.

Supernaturalism is another response to tragic consciousness. Whether it appears as a belief that angels and ministers of grace will protect people of good moral worth or appears as faith that another life free of the trials and tribulations of this world awaits the chosen, solutions appear as separate (and superior) to human endeavor. For Dewey, there are at least two problems with this response. First, as with resignation, supernaturalism undermines human initiative, according to Dewey.[2] While supernaturalism can galvanize some believers and spur them into

[2] Dewey does have a conception of God that, to his mind, avoids this problem. See *A Common Faith*, LW 9: 36–6.

action,[3] he believes that "Men have never fully used the powers they possess to advance the good in life, because they have waited upon some power external to themselves and to nature to do the work they are responsible for doing." Such a "[d]ependence upon an external power is the counterpart of surrender of human endeavor" (LW 9: 31–2). Instead of such dependence, Dewey asks, "What would be the consequences upon the values of human association if intrinsic and immanent satisfactions and opportunities were clearly held to and cultivated with the ardor and the devotion that have at times marked historic religions?" (LW 9: 47–8). Secondly, existence within a realm free of suffering undermines the flourishing promised by supernatural explanations. As Dewey says, "a world that is finished, ended, would have no traits of suspense and crisis, and would offer no opportunity for resolution. Where everything is already complete, there is no fulfillment. We envisage with pleasure Nirvana and a uniform heavenly bliss only because they are projected upon the background of our present world of stress and conflict" (LW 10: 22). James Garrison concurs, saying "Those that contemplate heaven's perfection envision a realm where they may rest from the weary work of the natural world. Strangely, they never contemplate the repugnance of a world where there is no more meaning to be made" ([7]: 57). Supernaturalism, for Dewey, provides a psychological salve, but it—like the various forms of entertainment—does little to change the world in which humans live, move, and have their being.[4]

So Dewey argues that neither fatalism nor supernaturalism proves to be adequate in addressing lived conditions; the world is both precarious and sustaining, and individuals must make their way through both features of existence, hopefully while developing an art of living to better enable meaning-making . In discussing the existential conditions within which humans exist, Dewey does not ignore the precarious, the banal, and the tragic. For instance, in *Experience and Nature*, Dewey claims:

> Man finds himself living in an aleatory world; his existence involves, to put it baldly, a gamble. The world is a scene of risk; it is uncertain, unstable, uncannily unstable. Its dangers are irregular, inconstant, not to be counted upon as to their times and seasons….Plague, famine, failure of crops, disease, death, defeat in battle, are always just around the corner, and so are abundance, strength, victory, festival, and song. Luck is proverbially both good and bad in its distributions. The sacred and the accursed are potentialities of the same situation; and there is no category of things which has not embodied the sacred and accursed: persons, words, places, times, directions in space, stones, winds, animals, stars. (LW 1: 43)

For Dewey, there are possibilities for both disaster and triumph, and while hard work and critical intelligence may influence the outcome, there are features of existence which cannot be controlled. Humans live in a tychistic universe, in which their best laid plans all too often go awry.

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[3] To a great extent, the Civil Rights leaders drew upon supernaturalism to encourage their followers; however, it was the persuasiveness of the leaders drawing upon religious texts within a particular moment in time that drove the movement. The same texts, and many of the same leaders, have not recaptured the social momentum of the 1950s and 1960s under such leaders as King and Malcolm X.

[4] Supernaturalism and entertainment can both inspire action, yet it is the action and not the inspiration that effects change.

In living, individuals continually move through "phases in which the organism falls out of step with the march of surrounding things and then recovers unison with it—either through effort of by some happy chance" (LW 10: 19). Growth occurs when these processes lead to a deeper enrichment. However, "If the gap between organism and environment is too wide, the creature dies. If its activity is not enhanced by the temporary alienation, it merely subsists" (LW 10: 19–20). In this passage, Dewey does not address what occurs if the organism closes the gap only to find itself in a diminished or less secure position; however, in *The Public and Its Problems,* he speaks of the "weakening of vigor and…sapping of energy that emanate from the absence of constructive opportunity" (LW 5: 80). As McDermott rightly claims, passages such as these call into question Dewey's supposed optimism, for growth is by no means guaranteed: "A closer look, however, reveals that alienation and death present themselves in the course of events, and the line between the temporary alienation necessary for the enhancement of life and the gap of permanent alienation which spells death, physical or spiritual, is a thin one" ([11]: xxix).

Dewey's "The Lost Individual" captures just such alienation in his description of the fear, anxiety, and desperation so often felt by American workers: "individuals are confused and bewildered," they "vibrate between a past that is intellectually too empty to give stability and a present that is too diversely crowded and chaotic to afford balance or direction to ideas and emotion" (LW 5: 66, 67). They face insecurity that "cuts deeper and extends more widely than bare unemployment. Fear of loss of work, dread of the oncoming of old age, create anxiety and eat into self-respect in a way that impairs personal dignity. Where fears abound, courageous and robust individuality is undermined." In place of confidence, we find "unrest, impatience, irritation and hurry" (LW 5: 68). For Dewey, social conditions have produced a pathological state: "Feverish love of anything as long as it is a change which is distracting, impatience, unsettlement, nervous discontentment, and desire for excitement, are not native to human nature" (LW 5: 68). But they are the conditions under which most Americans now live.

Besides nervous anxiety there is a sense of colorlessness, banality, or what Dewey calls the anesthetic. Dewey speaks of the "colorless conformity" which is the mark of one type negative morals: "Its commonest form is the protective coloration of a neutral respectability, an insipidity of character. For one man who thanks God that he is not as other men there are a thousand to offer thanks that they are as other men, sufficiently as others are to escape attention….Conventional morality is a drab morality, in which the only fatal thing is to be conspicuous" (MW 14: 6). But this colorlessness quite often extends into every aspect of an individual's existence. Experience becomes anesthetic when "[t]hings happen, but they are neither definitely included nor decisively excluded; we drift. We yield according to external pressure, or evade and compromise" (LW 10: 46). Unfortunately, the anesthetic becomes the norm, as most of life becomes either a "loose succession that does not begin at any particular place and that ends—in the sense of ceasing—at no particular place" or "arrest, constriction, proceeding from parts having only a mechanical connection with the other" (LW 10: 47). Just as Dewey's *The Public and Its Problems* captures the anxiety and bewilderment caused by alienation, so *Art as*

Experience presents the anesthetic aspect of contemporary existence, appearing in "the humdrum; slackness of loose ends; submission to convention in practice and procedure[, r]igid abstinence, coerced submission, tightness on one side and dissipation, incoherence and aimless indulgence on the other" (LW 10: 47). For Dewey, most of experience has become anesthetic, and because such a condition has become the norm (LW 10: 47), our cultural habits or character is likewise anesthetic.

Aaron Smuts, in "Anesthetic Experience," takes up this concern: "Dewey diagnoses a rarely recognized experiential ailment—what might be called the *anesthetic malady*. This illness generally results when experience is deprived of meaning due to the poverty of the predominant forms of activity available in one's environment" ([13]: 97). Although rarely recognized, the malady is certainly not rare, and the typical solutions address symptoms, not the underlying conditions. True solution would require radical reconstruction not only of the particular individual's circumstances but a transformation of the broader environment—all the elements which undermine aesthetic possibility. For Smuts, "The diagnosis and alteration of those activities, situations, and structures that prevent experience from being *an* experience is a crucial task for philosophers concerned with identifying the optimum conditions for human flourishing" ([13]: 97). Much of Dewey's writings, both academic and popular, fits this description and reflect his recognition of the banal or anesthetic qualities of existence and points to the need for developing an art of living.

In addition to the precarious and the banal, Dewey also acknowledges the tragic as a central feature of human existence. In the original opening chapter to *Experience and Nature,* Dewey speaks of "moving fatally to tragic destiny" (LW 1: 368) and the "fatal implication in the remote" (LW 1: 369). Dewey, so opposed to supernatural explanations, frames tragedy and destiny in naturalistic terms and sees them as of our own making, for individuals as well as for communities. Each generation bequeaths a set of social and biological circumstances to the next, and that generation must take up those conditions in its attempt to flourish. In the process, we create a sort of destiny for ourselves as these choices produce habits that form the basis of most of our behavior. Critical inquiry, communication, and dramatic rehearsal—the process by which we test options in our imagination before attempting to enact them in practice—all aid us in this process, yet they are usually applied poorly, if at all. Destruction of rainforests, the biological and social consequences of factory farming, and the economic consequences of long-term U.S. banking practices all serve as examples of the fatal implication in the remote and of our moving fatally to tragic destiny. Our earlier choices have set up organic chains of events which have created the circumstances of today. As each set of practices has become more habitual and entrenched, they have become increasingly difficult to change. This is the only sense in which destiny has any meaning within a Deweyan scheme. Certainly there are opportunities for change, and "human desire and choice count for something" (MW 14: 9); however, change must contend with the inertia within all systems. Tragic consciousness is the recognition of existence as all too often being precarious, banal, and tragic.

When we are forced to recognize the extent of the suffering and dangers surrounding us, it is all too easy for us to fall into despair or to turn to supernaturalism,

especially in light of human finitude. No matter what individuals do to mitigate the negative circumstances surrounding them, they continually find that it is too little and too late. Too often, people fall into either anxiety or depression in response to the precarious, the banal, and the tragic. Others turn from lived experience in the hope for a supernatural answer to life's problems. Dewey's philosophy, while acknowledging the existential realities humans face, attempts to provide a way of responding to these circumstances in the hope of finding a means of amelioration and growth. In doing so, he rejects both resignation and supernaturalism in favor of the development of an art of living.

Developing an Art of Living

As noted above, an ecological understanding of the individual heightens awareness not only of the aspects of existence which sustain human existence, but also those features which undermine human flourishing. Given the myriad relationships which form human experience, existence—to once again quote Ken Stikkers—"is not merely *precarious*…it is disastrous" ([14]: 65). Events such as those surrounding Hurricane Katrina or the school shooting in Newtown, Connecticut, are explicit examples that can awaken tragic consciousness and shock people into critical inquiry and behavioral changes; however, the tragedies of human existence appear most often in relationships all but hidden from view. But tragedy does not have to be the final answer. Dewey, while recognizing that humans exist within a precarious and often tragic milieu, rejects both fatalism and supernaturalism in favor of an aesthetics of possibility for growth toward an ideal, an art of living by which humans can transform the world and themselves by their cumulative actions. Such transformation is no guarantee of success, for such guarantees are impossible in a tychistic world such as ours. However, as James Garrison notes, "One does not need to think things are getting better to do their best, or that there is some cosmic guarantee for success. Such is the attitude of the meliorist in contrast to the optimist." This meliorism is artistic for Garrison, and for Dewey, because "humanity is a participant in an unfinished pluralistic universe and… human beings are created creators poetically continuing the creation," poetically in the "sense of *poiesis*, or calling into existence" ([7]: 58). Individuals are called into existence from the nexus of relationships which form them and which they also actively take up in self-formation. In doing so, they shape the relationships, thus calling into existence something new. Critical inquiry, moral imagination, and appropriate habit-formation work together in forming an art of living, but to adequately respond to the tragic conditions humans need an ethics of care that recognizes the interconnection of the individual, human community, and natural environment.

To be effective, an art of living requires critical inquiry. For Dewey, "Inquiry is the controlled or directed transformation of an indeterminate situation into one that is so determinate in its constituent distinctions and relations as to convert the elements of the original situation into a unified whole" (LW 12: 108). Put more plainly, individuals encounter situations which cause them to doubt, question, and examine.

The particular situation "concerns the interaction of organic responses and environing conditions in their movement toward an existential issue. It is commonplace that in any troubled state of affairs *things* will come out differently according to what is done" (LW 12: 111). The process of individual inquiring within an environmental matrix produces possible solutions which are able to transform the situation at hand—issue, individual, and environment. Intelligent action involves inquiry and selection of the option most likely to produce an outcome that transforms the situation into one which is more conducive to flourishing. In a world as precarious as the one in which individuals find themselves, inquiry into problematic situations is vital for the development of an art of living.

Moral imagination, the ability to "project novel ways to frame situations and thus 'broaden, evaluate, and even change one's moral point of view,'" is another important feature of an art of living ([6]: 63). Dewey emphasizes the importance of dramatic rehearsal, or using imagination to explore "various competing possible lines of action" in which "[t]hought runs ahead and foresees outcomes, and thereby avoids having to await the instruction of actual failure and disaster." For Dewey, "An act overtly tried out is irrevocable, its consequences cannot be blotted out. An act tried out in imagination is not final or fatal. It is retrievable" (MW 14: 132–133). Dramatic rehearsal allows us to project ourselves forward in our imagination in order to understand more clearly how we might embody and carry forward a particular action, whether "momentous" or ordinary. For the ecological individual, moral imagination and dramatic rehearsal oftentimes allows us to better recognize the extent to which seemingly ordinary actions have momentous consequences. The typical American diet, for instance, though quite ordinary for many, has momentous implications for the health of individuals and ecosystems. By using imagination to explore competing alternatives, individuals are better able to make sense of those alternatives in order to decide upon an appropriate course of action, in this case the consequences of a traditional American diet, vegetarianism, or some other option. Likewise, car usage in the United States provides information for moral imagination to work upon in determining the possible social and environmental consequences of increased sales in other countries. Dramatic rehearsal provides a degree of foresight so individuals can better anticipate future problems and benefits to particular actions. Moral imagination thus serves as an important feature in developing an art of living. Critical inquiry and moral imagination provide insight and guidance into a third element needed for an art of living: appropriate habit-formation. Dewey reminds us that:

> Individuals flourish and wither away like grass of the fields. But the fruits of their work endure and make possible the development of further activities having fuller significance. It is of grace not of ourselves that we lead civilized lives....The best we can accomplish for posterity is to transmit unimpaired and with some increment of meaning the environment that makes it possible to maintain the habits and decent and refined life. Our individual habits are links in forming the endless chain of humanity. Their significance depends upon the environment inherited from our forerunners, and it is enhanced as we foresee the fruits of our labors in the world in which our successors live. (MW 14: 19)

These habits appear at both the individual an societal levels, for as with everything in Dewey, such distinctions are functional rather than dichotomous.

Habits, which allow individuals to shift attention from the routine so that they are able to focus on more important endeavors, also serve as "the beginning of an intellectual specialization which if unchecked ends in thoughtless action" (MW 14: 121) Thoughtless action appears in personal and cultural habits which undermine human possibility, while critical inquiry and moral imagination allow for the development of habits which promote human flourishing. The most obvious example of the interconnection of individual and social habits appears in Deweyan democracy, which is simultaneously a set of political structures, an ideal toward which those structures should work, and "a personal way of individual life" that "signifies the possession and continual use of certain attitudes, forming personal character and determining desire and purpose in all the relations of life" (LW 14: 226). All three elements are expressions of habit: the political structures are organizational habits, as are the conceptual ideas that form the ideal of democracy and the personal habits of the individuals who desire democracy. An art of living that takes seriously the individual as ecological must take up habits which reflect and support the interconnection of individual and environment. But an art of living must also tap into the emotions of individuals if it is to be effective, for it is only when passions are involved that humans invest themselves wholeheartedly into particular endeavors or even pay attention enough to notice the extent of the problem at hand, an important first step in critical inquiry and moral imagination. As Dewey notes, "Desire for flowers comes after actual enjoyment of flowers. But it comes before the work that makes the desert blossom, it comes before *cultivation* of plants. Every ideal is preceded by an actuality; but the ideal is more than a repetition in inner image of the actual. It projects in securer and wider and fuller form some good which has been previously experienced in a precarious, accidental, fleeting way" (MW 14: 20). Wholeheartedly living by which the individual takes up self and environment toward an ideal requires passion; for that ideal to be sustaining within the interconnected matrix of existence, that passion must be at least tempered by care. As James Garrison notes, "We live in destitute times wherein the gospel of greed and financial profit…answers our existential questions" ([7]: 59). While the passion of greed can effect change, it does little to support the broad social and environmental systems of which we are but a part.

An art of living requires that individuals respond to their existential conditions and attempt to make meaning as they navigate those conditions. This process of meaning making takes place within a specific setting, and the community becomes not only the locus of action but also a reservoir of meaning and funded experience. Individuals are born within social and biological networks, both of which exhibit qualities that can add to or detract from the individual's possibilities for growth. A particular individual—even an extraordinary one—can achieve only a partial victory in his or her attempt to expand value and create a more just society. But in taking up the possibilities surrounding them, individuals are able to reshape their environments for good or ill, thereby leaving legacies that hopefully make their communities more sustaining than they were. Dewey's hope—despite the dangers, banality, and tragic implications of existence—appears in his closing of *A Common Faith:*

> We who now live are parts of a humanity that extends into the remote past, a humanity that has interacted with nature. The things in civilization we most prize are not of ourselves. They exist by the grace of the doings and sufferings of the continuous human community in which we are a link. Ours is the responsibility of conserving, transmitting, rectifying and expanding the heritage of values we have received that those who come after us may receive it more solid and secure, more widely accessible and more generously shared than we have received it. (LW 9: 57–58)

This is not a call to subsume one's identity into the group, nor is it an attempt to deny the existential realities we face. Tragedies sometimes cannot be averted, and humans are often left to figure out how to move forward in their aftermath. Dewey understands that achievements crumble, civilizations fall, and that time gnaws away at everything we hold dear. Regardless, culture provides an opportunity for us to create an art of living and to transmit our personal achievements so that others may take them up, renew them, and perhaps transform them along the way.

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Chapter 6
Emotionally Charged Aesthetic Experience

Pentti Määttänen

Abstract In traditional aesthetics, the typical characteristic of aesthetic experience is said to be pure disinterested beauty. However, the discussion based on this notion is burdened with the philosophical background assumptions of German idealism. In his Art as Experience John Dewey challenged the classical philosophical tradition and presented the key ideas for developing a new concept of aesthetic experience. In order to understand his pragmatist notion of aesthetic experience it is necessary to discuss a number of topics concerning pragmatist the challenge to classical philosophy. The philosophical naturalism of pragmatism questions the traditional distinction between the changing empirical world and the mind-independent real world as an object of genuine knowledge. There is only one world and we are in it. Dewey's naturalism is, however, in important respects different from the main trend in contemporary naturalism. Further, the pragmatist conception of experience must be clearly distinguished from the traditional notion of experience as sense experience. Action and practice are modes of experiencing and understanding the world. The third topic concerns the naturalistic denial of any immaterial substances. The mind is necessarily embodied, but this is not enough to remove the classical dichotomy between internal and external. A fourth questionable dichotomy in classical philosophy is related to this: the sharp distinction between reason and experience. The pragmatist notion of meaning undermines this dualism. This notion of meaning also serves as a basis for understanding Dewey's comments on the meanings typical in art. Finally, the emotionally expressive power of art requires an explanation. A discussion of all these points helps to clarify the character of the pragmatist notion of aesthetic experience developed below.

Keywords Pragmatist aesthetics • Dewey • Emotion • Naturalism • Embodied mind

P. Määttänen (✉)
Department of Philosophy, History, Culture and Art Studies,
University of Helsinki, Helsinki, Finland
e-mail: maattanenpentti@gmail.com

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Philosophical Naturalism

Generally speaking naturalism maintains that human beings are live creatures. The question stemming from the 1900th century is the following: What has to be changed in philosophy if Charles Darwin is right? One sure thing is that there is no longer room for any absolutely a priori method for attaining eternal timeless truths about the genuine object of knowledge, about the real world as opposed the experienced world. Willard van Orman Quine put it quite clearly by saying that epistemology is just a chapter in empirical psychology. He understands psychology as a branch of natural science, and ended up with reductionism in his philosophy of mind and an emphasis on brain research. Quine's naturalism relies on hard natural scientific methods.

John Dewey's naturalism can be called soft naturalism as distinguished from Quine's hard naturalism [17]. According to Dewey, culture is a product of nature. He viewed science as problem solving. Naturalism involves no a priori commitment to the methods of natural science. Any method can be used if there is reason to assume that using it may produce information that helps to solve the problem at hand. The point of agreement between hard and soft naturalism is the conviction that classical epistemology is based on outdated metaphysical assumptions.

The way out of these assumptions is the conception that there is only one world, and we are in it. The world is causally closed. This entails that everything in the world proceeds through physical causal processes. There is no room for any immaterial consciousness having an effect on the causal processes. Mind is necessarily embodied. However, as we shall see in section "Embodied mind", this does not necessarily entail that cognition must be reduced to brain processes. What does follow is that all questions concerning the character of cognition are ultimately empirical questions. This is not to underestimate the need for abstract conceptual analysis, the traditional task of philosophers; but all abstract conceptions must have some connection to experience in order to be relevant for the scientific study of cognition.

Experience and the Object of Knowledge in Pragmatism

The traditional view in philosophy is that experience is sense perception. Sense organs function as channels through which the internal mind observes the external world. Visual perception has dominated the discussion since it was discovered that the eye functions like a camera obscura. The retinal image was thought to continue to the brain and to change into a mental image. Other senses were analysed in a similar manner. The object of knowledge in this kind of approach is the external world as the hidden cause of perceptions. The hidden causes as such cannot, of course, be perceived, and therefore the task of the experiencing subject is to find out what we can really know about these hidden causes. They form the mind-independent real world that we must come to know. This task is an issue even in the present day philosophy of science.

According to Charles Peirce the pragmatist conception of experience is broader than that of sense experience ([20], CP 1.336). Action and practice are forms of experiencing and understanding the world. This is a major change in the notion of experience. In pragmatism the world is not experienced in the form of individual objects having certain qualities and mutual relations. The world is experienced as possibilities for action. The object of experience is not the perceived world but the objective conditions of action. These conditions are, of course, observed, but they do more: they shape our action (more about this in section "The notion of meaning in pragmatism").

Action as a mode of experience changes the former emphasis on hidden causes of perception to the possible future consequences of action. The static view of what is perceived here and now is changed to a dynamic view about what we will perceive if we, in a situation like this, perform certain acts. Life involves orienting to the future on the ground of past experience. The classical conception of two worlds, the empirical world and the real world as a hidden cause of perceptions, is changed into the view that there is only one world but there is still a problematic relation between what is perceived and what is hidden. The hidden world just is not hidden in principle. The future is hidden now, but on the basis of past experience we are able to control the kinds of experiences we will encounter in the future if we perform certain acts.

In pragmatism the object of knowledge is thus defined in a different way. The classical epistemic relation between perceptions and their hidden causes is replaced by a relation between two situations: the one we are in at a certain moment and the other that is a consequence of our activities. As Dewey put it, the guided processes of change form the objects of knowledge ([5], 160).

Anticipation of the future is based on experience, which is a complex thing. Evolution has given us a history experience of interacting with our environment. This interaction has shaped us as biological organisms. The ultimate reason for our having these organs is the fact that they have made it possible to stay alive on earth. It is also reasonable to believe that some of our inborn capacities, for example the capacity to learn natural languages, are at least partly an outcome of the evolutionary pressures created by the social and cultural environment of our ancestors. According to Merlin Donald, symbols are a product of thought, not vice versa ([9], 276), and these cognitive capacities must have developed independently of the ability to use language. Conscious human thought has its origin in the complex social organization of primates. To this we have to add the experience accumulated during historical and cultural development. Each new individual faces the task of adopting the skills made possible by this multilevel and ultimately long evolutionary experience. It is obvious that the number of possible learning histories is enormous.

The possibilities for action that open up in the future form a no less complicated scenario. There are always several options for action and their different combinations. And the number of possibilities depends on the number of skills one has adopted on the basis of our shared experiential background. The growing complexity of the social and cultural environment increases the number of possible actions. An adequate analysis of this complex situation requires a dynamic approach where

the emphasis is not on what we observe here and now but on what to do on the basis of past experience in an observed situation. This pragmatist definition of the object of knowledge also has consequences concerning the relation between facts and values (section "Facts and values in pragmatism").

Embodied Mind

Naturalism entails that mind is necessarily embodied. The brain is the organ of thought, which is probably why the mind is sometimes identified with the brain. Naturalism does not, however, necessarily imply this identification. Nature is causally closed, but there are other physical causal processes besides the brain processes that may be involved in thinking. The brain is the organ of thought but it is not the brain that thinks. A human being thinks with the brain. Just as the legs are the organs of running but it is not the legs that run. A human being runs with the legs. The brain in a vat will think exactly as well as a pair of legs cut off from a body will run. The conception that mind can be identified with or reduced to the brain is a peculiar form of neo-Cartesianism. What René Descartes said about the soul, is said about the brain ([2], 103–107). The doctrine of two substances, the material and the mental, is rejected, but the internal/external dichotomy remains. And the so-called hard problem of consciousness also remains: how and why we have subjective phenomenal experiences and what their relation is to brain processes? This problem has its roots in the external/internal dichotomy that, however, is not the only way to approach the problem of cognition.

An obvious but not so thoroughly investigated possibility is that the ability to think is not attributed to the brain and not even to the body as a whole but to the system of interaction between an organism and its natural and social environment. John Dewey criticized in 1896 the reflex arc concept and suggested that a concept of a sensorimotor circuit might do better [6]. The difference between an arc and a circuit is precisely in the role of the environment. The objects of environment belong to "the functional organization of mind" ([15], 105). In this approach, mind is constituted by the interaction of an organism and its environment. This changes the hard problem of consciousness. Phenomenal qualities are real relations between biological organisms and their physical environment. They are qualities of concrete interaction. The subjective aspect of experience is based on the fact that mind is embodied and that the body determines one's viewpoint.

Interaction consists of action and perception. They are not so easily distinguished. Peirce writes that in perception the world's effect on us is greater that our effect on it, while in action it is the other way round ([20], CP 1.324). In this way, action and perception form a circuit or a loop where all proceeds through physical causal processes. The basic principle of naturalism, the principle of causal closure, remains in force. This loop of perception and action is a unit of analysis within which it makes sense to speak about experiencing the world as possibilities of action on the basis of the experience of past interactions. Present experience

extends behind the immediately perceived because past experience enables one to anticipate the consequences of possible courses of action. This unit of analysis is also the framework for defining the pragmatist notion of meaning that explains how the world is experienced as a meaningful environment.

The Notion of Meaning in Pragmatism

The minimum requirement of something having meaning is cognitive distance. Meanings enable one to think about something that is not immediately present. Language is a system of symbols and a powerful vehicle for thought. However, the pragmatist notion of meaning is wider. It covers both linguistic meanings and tacit (non-linguistic) meanings.

Habit of Action as Meaning

According to Peirce, what a thing means is simply what habits it involves ([20], CP 5.400). What are habits of action? A habit is formed when a similar action is repeated in similar circumstances. The outcome of this repetition is a structure or scheme of action that has the tendency to be reproduced in the future. Habits of action thus enable one to anticipate that habitual action in similar circumstances tends to produce similar experiences as in the past. All that is required is a memory trace about the course of events during the past activities. This takes place by virtue of a habit formation mechanism that I have called the pragmatist law of association [18]. The classical laws of association (similarity, proximity in time or place and causality) are not enough. The basis of association is the fact that in habit formation action must be accommodated to objective conditions of action. Classical laws of association concern internal units, and the associations are supposed to be created literally in the mind (or the brain). But the pragmatist law of association concerns the association of individual acts into a habitual series of acts. Associations are formed during and because of overt activity. These associative chains make anticipation possible. The anticipation of probable future events on the basis of what is observed and what possibilities of action the situation provides is, in effect, to have cognitive distance. One is able to think about something that is not here and now but somewhere else at another time. In other words, one is able to think about the future consequences of action. Habits thus fulfill the minimum requirement of being meaningful.

What are tacit (non-linguistic) meanings? Any object of perception may involve habits. This makes it a sign-vehicle that carries meanings. Most of us have the habit of using the door and not the window when exiting a room. Doors and windows have thus different meaning for us. A door refers to certain experiences that we have had and probably will have when using doors. And our evolutionary experience

warns us strongly against using a window for exiting a room. Chairs, tables, hammers, buildings and so on have different meanings. As we shall see in section "Values and emotions", the same also holds for individual qualities. The world experienced as possibilities of action is a world full of meanings that make it possible to think about the consequences of different habitual activities and their combinations. Note that there is no mention of language. The Peircean definition of meaning can be applied to animal cognition and as an account of tacit (non-verbal) meanings as a basis for linguistic meaning.

Meanings are also supposed to be general. For Peirce habits are general, but in what sense? Habits exist as repeated similar activity in similar circumstances, as modes or forms of practices. Peirce approached the problem of generality by asking when does generality arise. In the past there can be only a certain number of acts, and no genuine generality can be involved. Therefore the so-called real generals (or universals) cannot exist in the past. The same holds for the present because only one act can be performed at one time. The only possibility left is the future. Peirce writes that a general fact cannot be fully realized. It is potential and its "mode of being is esse in futuro" ([20], CP 2.148). Peirce says the same thing about meanings ([20], CP 5.427). This implies that general things like meanings can only be objects of thought. One can only think of repeating instances of a habit indefinitely many times in indefinite future. But this does not imply any theory of two different substances, mental and material, because all acts are performed in nature, in the material world. Generality exists as repeatable habitual behaviour, generality is continuous activity as Kant put it (stetige Handlund, [12], 615). Habits as meanings are thus general entities and also in this sense capable of being vehicles of cognition.

What is it to think with habits? Peirce compares it with listening to a melody or a musical phrase. One certainly hears only one note at a time but the listening experience is different. On the basis of what is already heard, one anticipates how the phrase might continue. The phrase is an object of perception or of thought as a whole even though the actual listening or thinking is a temporal process. This is analogous with thinking about habitual action. Accordingly, thought "is a thread of melody running through the succession of our sensations" ([20], CP 5.395). We think of habitual behavior by anticipating the future course of action on the basis of past experience and by observing changes in environmental conditions. The pragmatist law of association provides the mechanisms for this.

Language and Meaning

A traditional way of putting the question of linguistic meaning is to ask by virtue of what does a sequence of letters, 'table', refer to all the tables in the world. This way of putting the question temps one to think that the word has a specific capacity, called intentionality, for referring to something else. Franz Brentano used this concept in psychology and defined mental states as intentional entities having that

capacity. Brentano used the analogy between words and mental states. This analogy temps one to think that ideas (thoughts, mental representations) are individual units in the mind.

As George Lakoff and Mark Johnson [13] write, this Cartesian idea is based on a container metaphor. The familiarity of the metaphor makes the idea easy to understand and easy to adopt. Unfortunately it is also based on the outdated metaphysics of two different substances and keeps the external/internal dichotomy in force. Further, in pragmatist analysis meanings and thoughts are relations. Experience consists of a complex system of relations that are realized in the interaction between an organism and its natural and cultural environment. Relations don't have well defined locations and it would be a logical category error to reduce a relation to one of its elements.

From a pragmatist point of view this way of putting the question is misleading. A better way to approach the problem of linguistic meaning is to point out that we have two types of activities. We do something with linguistic expression and then we have other kinds of practical activities. A better question is to ask about the relationship between these activities. This is how John Dewey put it. The word 'hat' gains meaning in the same way as a hat, namely by being used in a certain way ([4], 18). There is a clear analogy between the use of language and the use of other things, hats, tools and so on. Ludwig Wittgenstein, who famously applied the principle that meaning is use, also refers to this analogy ([23], 21). Peircean pragmatism goes further. The relationship between the use of language and the use of tools is more than an analogy. The use of tools and other objects of perception creates meaning structures independently of language. Accurately speaking Wittgenstein's principle is an application of Peirce's wider definition: what a thing means is simply what habits it involves. The use of a linguistic expression surely belongs to the habits involved. Habits of use form a subcategory of all the habits involved.

There are two systems of meanings functioning according to the same principle: meanings are habits of action. One is the system of linguistic meanings and the other is the system of tacit (non-linguistic) meanings. Language as a system of groups and strings of letters gains its meanings when it is used in the context of other practices that are meaningful in their own right. Consistent naturalism requires a bottom-up strategy. Tacit meanings are primary and basic. Merlin Donald is right in maintaining that symbols are the product of thought. What is the origin of thought? The pragmatist answer is: it is in the development of tacit meanings, habits of action as ways of surviving in nature. Another point concerning the priority of tacit meanings is conventionality. Meanings of words are conventional in the sense that the physical properties of words are needed only for the purpose of noticing differences between words. They do not restrict the possible meanings. In tacit meanings things are different. The physical properties of the sign-vehicles, tools, tales, houses and so on and the properties of the agents, human beings as biological organisms, do restrict the possible habits involved and, therefore, the possible meanings. Tacit meanings are not conventional in the same way as linguistic meanings.

Tacit Meanings Typical for Art

In *Art as Experience* John Dewey distinguishes between linguistic meanings typical for scientific texts and meanings typical for art ([8], 82–105). He discusses mainly painting (poetry and literature are not considered). Science states meanings but art expresses meanings. One distinguishing feature is that meanings do not belong to the word intrinsically. Language is conventional and meanings are something external to the letters of words. In paintings the meanings are present in the picture; the meanings are incorporated or embodied in the canvas. Another distinguishing feature is that meanings in art are individualized. One change in the color, line, form and so on changes the meaning of the picture as a whole. Linguistic meanings are what they are independently of the font, color of letters and so on. Linguistic meanings are abstract in a different sense than the meanings that are typical for art. This has to do with the concrete presence of meaning in art. A third important difference is that meanings in art are often emotionally powerful (this aspect is discussed in section "Meaningful emotions").

Dewey describes these differences in a few pages but does not give a definite theory of meaning that would explain them. There are only a couple of characterizations of meaning in his book, but one of them is quite informative. "The action and its consequence must be joined in perception. This relationship is what gives meaning; to grasp it is the objective of all intelligence" ([8], 44). This is, in effect, the same definition of meaning that Peirce gives: what a thing means is simply what habits it involves. The pragmatist notion of tacit (non-linguistic) meanings outlined above explains these features. Dewey's characterization of meanings is also in accordance with the pragmatist definition of the object of knowledge.

Tacit meanings are always present in any observed situation. Concrete objects of perception, such as chairs, windows, cows, trees and others, are sign-vehicles, carriers of meaning. And the meaning, the consequence of habitual action, belongs to the object of experience (and knowledge). Tacit meanings are interwoven with our concrete life practices. Linguistic meanings form a different and a more abstract layer in the system of meanings. Tacit meanings are embodied in the concrete things we encounter when acting in the world. Paintings with their tacit meanings are closer to everyday experience than abstract linguistic meanings. In this sense the tacit meanings are embodied or incorporated in the picture.

Tacit meanings are also individualized every time they are realized. A habit of action gives only a scheme or structure for conduct. The course of habitual action always depends heavily on the actual situation. The actual courses of conduct may vary a lot even though they are instances of the same habit. Tacit meanings also depend on the context in the sense that there are typically a large number of possibilities of action available in any situation. Even if these possibilities are not realized (they all simply cannot be) or consciously considered they add their part to the overall meaning of the situation. The scene of such situated activity is full

of meanings. A situation is semantically dense. The same density of meanings applies to paintings. In this way, the meaning of a work of art as a whole is individualized.

The claim that art expresses meanings is open to misinterpretations. Some aesthetic theories maintain that an artist expresses her inner mental life through an external object of art. This is something that Dewey would put into the category of "antiquated psychologies". Meanings are ideas in the mind. Communication is transferring ideas into other minds using language. Since works of art like musical works are not related to conscious ideas in the same way as words, the meanings in art and their communicativeness remain a mystery [16]. This view retains the internal/external dichotomy of classical philosophy. In Dewey's aesthetics it is the meanings that are expressive as compared to those of a scientific text. This is not to deny the artists' role in creating expressive works of art. The point is that the word "expresses" is used in a different sense and that the philosophical framework is different.

The way out of the background assumptions of classical philosophy is indicated by Dewey's distinction between the object of art and the work of art. This distinction is also vulnerable to misinterpretations because a work of art is usually considered to be a physical object, for example, a canvas hanging on a wall. In Dewey's terminology a work of art is an experience, and experiences cannot hang anywhere. An object of art may hang on a wall, but the work of art is that object as experienced. And the work of art as an experience is not something private and internal mental state. Dewey consistently criticized this kind of mentalist psychology. Experience is interaction with the environment, and some experiences can be classified as aesthetic (see section "Aesthetic Experience in Pragmatism"). The point is that experience (as well as the mind) is a relation (or a system of relations) between a living organism and its environment. A work of art is realized in ongoing experience.

Consider colors. They are experienced as properties of physical objects, but actually they are properties of interaction in the sense that they also depend on internal conditions (internal to the body, that is). Light and a reflecting surface are not enough. There has to be a certain kind of biological organism with eyes and other neural structures. These three conditions make it seem that, in actual interaction, colors are experienced as external to the body. There is no need to speculate about colors residing literally in the head as phenomenal qualities. In a similar way emotions are experienced as internal (to the body), but as we shall see in section "Values and emotions", in pragmatism they are analyzed as qualities of action. A work of art consists of (actually or potentially) experienced qualities and, as such, it is a relation between an organism and the object of art that is a cause (but not the only cause) of the experienced qualities. Art itself is "a quality of activity" ([8], 224).

An object of art is experienced as being expressive. Expressiveness is related to the character of tacit meanings typical for works of art. A work of art is an object of art as understood and interpreted with various kinds of meanings. This holds also for individual qualities. One cannot experience "pure" or "simple" qualities ([8], 121). A color as seen is qualified by "implicit reactions of many organs" (ibid., 122).

Colors are charged with hidden consequences. In other words, even simple qualities are experienced as belonging to the whole that consists of the present situation, possibilities for action and the anticipated outcomes of habitual activity. This gives the qualities meaning precisely in the sense of the pragmatist notion of meaning defined above.

The origin of tacit meanings is ultimately from our evolutionary experience. This entails that these meaning structures function largely subconsciously. It is unthinkable that we could remember what kinds of experiences led to the development of our sense organs, for example. However, these experiences have left their trace in the structure and mechanisms of our biological bodies and therefore effect how we experience, understand and interpret our environment.

Meanings, by definition, can be used in thinking and communication. The fact that the tacit meanings of art function largely subconsciously does not prevent this. That subconscious cognitive processes exist is simply an empirical fact. Without any closer analysis there is a temptation to be content with concepts like intuition, creativity and the like. The pragmatist notion of tacit meanings is one attempt to describe the mechanisms of subconscious cognition.

Communication with subconscious tacit meanings is perfectly possible and, ultimately, it is not so different in comparison with writing a text. Recall the distinction between an object of art and a work of art as an experience. An artist works with the object of art using her own experience of it as a standard. She is finished when she is satisfied with her own experience. The object of art is then removed to a gallery, for example. Note that a work of art is not an entity that can be removed. Other people come to experience that object of art. Their experiences are similar to the extent they have common background. The tacit meanings of art are effective in communication precisely because their ultimate origin is our evolutionary experience. Historically and culturally established meanings have, of course, their role in experiencing art, and their effectiveness in communication is also based on a shared human background.

Writing a text is not so different. An author produces a text, rewrites it until the long rows and groups of letters state the meanings the author wants to convey. The reader has nothing but the letters plus her own background of reading and writing. Communication is successful to the extent that the author and the reader share a common background of meanings. But meanings, thought contents and experiences are not entities that can be removed from one place to another. They are created anew at each moment. A skilful artist and a skilful writer are able to control the experiences of other people in the direction (or directions) they want.

Values and Emotions

Antonio Damasio [3] has put forth a hypothesis that he calls the somatic marker hypothesis. According to it emotions are signs of values. It proves to be useful in explaining why an aesthetic experience (in Dewey's sense) is emotionally charged. Damasio's views fit well with the pragmatist notion of meaning.

Facts and Values in Pragmatism

One of the misleading dichotomies in the classical philosophy is the dualism between facts and values. David Hume, in considering a murder, concluded that there are only certain passions, motives, volitions and thoughts but no other facts that could be called vice ([10], 468). On the next page he presents the famous principle: no ought from is. These places in Hume's book are quoted quite often. Between these passages Hume writes that vice and virtue are like sounds, colors, heat and cold in that they "are not qualities in objects, but perceptions in the mind" ([10], 469). This sentence is not so often quoted. It is, however, important because it reveals the metaphysical framework of Hume's thought. This kind of dichotomy of external and internal is not tenable in consistent naturalism. Heat as molecular movement, as the current definition says, is obviously a property of sun, for example. And, as Hilary Putnam points out, Hume advocates a kind of pictorial semantics ([21], 15). If something cannot be literally perceived here and now, it cannot belong to the world of facts. Hume's concept of experience admits only perceptions of particular sense qualities.

In pragmatism the notion of experience is different, as is the notion of fact. In pragmatism the world is not experienced as sense qualities. The world is experienced as possibilities for action that lead to anticipated consequences. Accordingly, facts consist of the relation between what is observed here and now and what will be observed later as a consequence of certain kind of conduct. Ongoing activity is the essential feature of experience. Action is possible only on a timeline where outcomes of action can be anticipated (not necessarily consciously) on the basis of past experience.

This viewpoint changes the relation between facts and values. The world is full of possibilities for action, and only one or two activities are usually possible at one time. This entails the need to choose between various courses of conduct. And choice is, in effect, valuation. Some anticipated outcomes are valued more than the others. These values and the choices based on them are, of course, at different levels. Analogously with the system of meanings, value theory also requires a bottom-up analysis. This is the exact contrary to the classical tradition which maintains that values come ultimately from theology or pure conceptual analysis, moral Mount Sinai, or out of the a priori blue, as Dewey put it.

Naturalism puts human beings in nature where biological organisms are born, live their lives and die. Live creatures have the interesting feature that they tend to live their life until it eventually ends. In fact, there is no choice about that. Another easily observable fact is that live creatures usually strive to survive. And in order to survive one must breath, have water and food, shelter, and so on. This striving creates a natural source of norms that I have called biotechnical normativity [19]. In order to continue one's life one has to make certain choices. These choices are based on the valuation of the expected outcomes of action. A hungry animal values food because she expects to experience something positive after eating it. Experienced satisfaction of hunger is a positive value for all animals and it is, pace Hume, an observable fact in nature. Human beings with history and culture also have other

normative structures. In a bottom-up analysis, they are constructed on the basis of the biotechnical normativity that provides an objective basis also for other values.

The outcome of the analysis above is that facts and values are not separable into different realms of being. For an acting agent, facts and values are intertwined. An acting agent is necessarily a valuing agent.

Meaningful Emotions

Emotions are experienced as internal states. As such, they are sometimes regarded as causes of action. In William James's example a man is running away from a bear. According to James the actual cause of running is the bear, not the fear. The fear qualifies the running; it is a quality of action. Emotions have an object even if it is not consciously recognized. In other words, emotions are meaningful. The pragmatist notion of meaning explains this. Any object of perception may involve habits. These habits offer anticipations of the possible consequences of dealing with that object of perception. These consequences simply are the meaning of the object.

In Damasio's view, emotions are meaningful signs (somatic markers) of values [3]. He maintains that emotions are necessary aids of rational cognition. Alternative courses of action cannot usually be calculated so well that rational choice could be based solely on them. Time and cognitive resources are limited. Damasio describes extreme cases where persons tend to make calculations that are too extensive. According to him these persons have Kantian minds that resemble patients with damages in the frontal lobe. Emotions help us make choices by indicating that it is time to stop calculations. Negative emotions advice immediate avoidance and positive emotions indicate the need to concentrate on how the object of emotion might be accessed. For Damasio emotions are heuristic aids of rational thought.

The pragmatist notion of meaning contains the idea that habits are tacit meanings and, as such, they are vehicles of rational thought. As pointed out above, the background of tacit meanings is our long evolutionary experience. Objects and features of the environment, with which we associate habits sometimes consciously but most often subconsciously, thus have meanings on the basis of all the experiences encountered as outcomes of these habitual activities. It is evident that we cannot consciously analyze and recollect the evolutionary history of these experiences. However, they have left their trace in the mechanisms of subconscious cognition with tacit meanings and emotions involved here. But the experiences have left a memory trace as their summary. And this also holds for single sense qualities. We cannot experience "pure" or "simple" qualities. They are charged with hidden consequences and, therefore, also with an emotional flavor based on subconscious valuation. It is not accidental that red is experienced differently than blue or green. This is obviously related to the different role of these colors in our evolutionary history.

Dewey discussed this emotional charge and, for some reason, used in this context the German world Gefühlston, a tone of feeling ([7], 188). Single experienced

qualities also have this Gefühlston that carries with it memories of past experiences. Emotions are signs of values. The pragmatist notion of meaning is an explicit account of how this sign-relation actually functions. Habitual ways of having experiences help to anticipate what sort of experiences can be expected given the presence of certain qualities, objects and combinations of them. Positively valued experiences promote positive emotions and negatively valued outcomes promote negative emotions. Habits as tacit meanings are vehicles of cognition and the outcome of these subconscious cognitive processes become conscious as emotions, as a Gefühlston.

Aesthetic Experience in Pragmatism

The basic aim of pragmatist aesthetics is to recover the connection between art and life. Crudely speaking, the concept and the practices of fine art (or polite arts for the polite classes, as was also suggested) were created in the 1800th century when the bourgeoisie removed paintings and statues to museums and galleries and developed a corresponding aesthetic theory with its principal concept of pure disinterested beauty [14, 22]. The notion of pure disinterested beauty is not utterly wrong. It expresses something that is true about experiencing art. Enjoyment offered by art does not have direct relation to the interests of everyday practices. It is often emotionally powerful without any clear connection to specific things that might be causing these emotions. However, all this can be explained without appealing to the philosophical background assumptions of classical philosophy.

John Dewey emphasized the continuity between everyday experiences and art. Recall that Dewey defined a work of art as an experience produced by an object of art. Dewey's notion of aesthetic experience is not introduced as a tool for sharp categorization of fine art as something separate from other experiences. Art has no privilege concerning aesthetic experiences. Objects and things outside the artworld are also capable of being experienced aesthetically. Dewey uses also the concept of *an* experience with the emphasis on the article. The purpose of this emphasis is to point out that the experience is in some sense exceptional, worthy to remember, but maybe not quite an aesthetic experience. It is an experience with some aesthetic quality. This continuum of concepts expresses the continuum between fine art and everyday life.

The central feature of an aesthetic experience in Dewey's sense is its consummatory character. It is in some sense finished and complete. It is valuable in itself, not as a means for other experiences. Its value is positive, but this is not tied to any specific concept like beauty or the sublime. The definition is in this sense formal. The content of the experience may vary. It may be beautiful or ugly, pleasurable or fearful. The point is that it is pursued for its own sake. Stendhal suggested that beauty is a promise of happiness. At a more general level we can say that an aesthetic experience is a promise of consummation, and this promise is enjoyable in itself.

The fact that an aesthetic experience is only a promise of actual consummation entails that it is not directly connected to action. It is not merely a means for other experiences. There is a difference between musical experiences and ticket buying experiences sometimes necessary for getting into a concert. Ticket buying is a clear means for a musical experience that is valuable as such. It is a perceptual experience, only a promise of real consummation to which action might lead. This can be called relative disinterestedness. It is only relative because the connection to action and practice is not completely broken. Basically this follows from the processes of understanding and interpreting. All experiences are understood and interpreted as meaningful in some way or degree, and in pragmatism these meanings are ultimately habitual activities. The vehicles of understanding are practical and therefore connected with the goals and interests of life in general. Disinterestedness is relative also in the sense that aesthetic experiences may be means for cultivation of personality, they often have a social function, and so on.

The emotional power of an aesthetic experience is also explained by the connection with habits as meanings. Emotions are signs of values, but the Gefühlston of perceived qualities of the works of art is based on the long forgotten experience of our evolutionary history. No conscious meanings can necessarily be attached to qualities, but this is a consequence of the subconscious character of the tacit meaning structures that are typical for works of art. What can be consciously manipulated is the emotionally charged aesthetic experience, and that is what composers and performers do using their own experience as a model. That is how one communicates: using tacit meanings that have subconscious referents.

Subconscious meanings do refer to past experiences that have shaped our sense organs, cognitive and emotional mechanisms. And the overall subconscious valuation of the referents of these meanings becomes conscious as emotions. Therefore music, for example, is meaningful just because of this (tacit) reference, contrary to what Mark Johnson writes ([11], 242–243). According to Johnson music is meaningful but does not refer. That is true if the meanings are supposed to be conscious. However, Peirce's explicit definition of meanings as habits of action gives a basis for suggesting a system of tacit and largely subconscious meanings that do refer. As Dewey pointed out, even single perceptual qualities are charged with hidden consequences that constitute the meaning and the related Gefühlston of these qualities.

Aristotle distinguished between praxis and poiesis by saying that the goal, telos, of poiesis is something external to the activity while the goal of praxis is the activity itself ([1], 1140b 5–10). The paradigmatic example of praxis is eudaimonia, the good life. Aesthetic experiences are something that are pursued for their own sake, and therefore they are also suitable elements of Aristotelian praxis, good and happy life.

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Part III
Neuroscience, Aesthetics and the Embodied Mind

Chapter 7
Embodied Aesthetics: Insight from Cognitive Neuroscience of Performing Arts

Luca F. Ticini, Cosimo Urgesi, and Beatriz Calvo-Merino

Abstract Echoing the phenomenological tradition in philosophy, recent hypotheses have proposed that aesthetic experiences are grounded in the embodied simulation of the actions, emotions, and corporeal sensations represented in artworks. We refer to these simulative processes as "embodied aesthetics". Recent investigations in cognitive neuroscience have helped us to explore the mechanisms of complex human experiences and some of them have been specifically dedicated to the study of the neural underpinning of aesthetic experience. Their results have repeatedly suggested that the creation and the perception of artworks activate a set of shared brain mechanisms, especially as far as performing arts (such as music and dance) are concerned. For instance, pleasurable dance may resonate in the spectators' brain by enhancing the activity in motor-related areas. This evidence points to the universal involvement of a motor resonance mechanism in aesthetic experience. The present chapter will initially explore the general idea of embodiment. We will then describe some studies in the field of performing arts, where the human body is the object of aesthetic stimulation and the subject of the aesthetic experience. We will also describe how embodiment is modulated by different properties of the stimuli, by the performers' body or by the preference of the observer. Overall, we expect to provide a framework to better understand aesthetic experience from an embodiment perspective, taking into consideration the different factors that interact with these processes, especially as far as the performing arts are concerned.

L.F. Ticini (✉)
School of Psychological Sciences, The University of Manchester, Manchester, UK

School for Advanced Studies in the Social Sciences (EHESS), Paris, France
e-mail: luca.ticini@gmail.com

C. Urgesi
Department of Human Sciences, University of Udine and Scientific Institute IRCCS E. Medea, Udine, Italy

B. Calvo-Merino
Psychology Department, City University London, London, UK

Psychology Department, University Complutense Madrid, Madrid, Spain

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Introduction

A close link exists between action perception and action execution [55]: passive observation of an action executed by another agent (such as grasping a fruit) triggers the corresponding representation in the perceiver's brain. This phenomenon was originally discovered in the non-human primate brain, where a class of neurons – known as mirror neurons – are activated by the execution as well as by the observation of similar actions [52]. Later on, evidence for the existence of this mechanism has been observed also in the human brain. Indeed, following the seminal transcranial magnetic stimulation (TMS) work by Fadiga and colleagues [21], numerous studies have shown that we covertly simulate the actions that we observe [53], even when they are represented in a static medium (e.g., photographs depicting an agent executing a movement [69]). This mirror neuron mechanism (more left lateralized) is activated by action stimuli ranging from simple finger to whole body movements [57] and it is thought to mediate the understanding of others' actions [65]. Interestingly enough, further research in this field has isolated audio-visuo-motor neurons in the monkey premotor cortex that are activated not only when the animal performs a given motor act, or when it observes another agent executing it, but also when it listens to its sound [38]. This shared representation has been observed in the human brain too, where the sound generated by an action triggers the corresponding motor program in the listener's brain, even when the agent is occluded from sight [1, 61]. Taken together, this evidence suggests that the human and non-human primate brain is capable of inferring (and covertly simulating) the behavior of others not only when the action is directly observed, but also when the effect of others' actions is the only information available.

For those scholars interested in art, this phenomenon has triggered interesting hypotheses on whether action simulation has an active role in aesthetic appraisal and appreciation of art forms such as dance (where bodies are actually observed; see also [14]), music (where the motor behavior can be inferred by the sounds; e.g. [15, 44]), and pictorial art [64]. For instance, it has been hypothesized that the actions depicted on a canvas, either in the form of actual body representations (e.g., Caravaggio's *Boy with a lizard*) or in the form of brushstrokes (representing the actions performed by the artist in the artistic medium), could be embodied through an action simulation process homologous to that described above [24]. The degree to which action simulation may contribute to aesthetic appraisal is still controversial. However, some evidence suggests that the hypothesis may hold true. In this chapter, we aim at exploring some of the research that may help us better understand how action simulation relates to aesthetics.

Embodied Aesthetic and Dance

The human body has the ability to freely move in various directions, at different speeds and with complex combinations of limb postures. Sometimes, these movements are orchestrated with the aim of producing an aesthetic response in the observers' mind (e.g., in dance). How this may happen has been the object of many philosophical theories, dance studies, and recent visual neuroscience and neuroaesthetic investigations. Originally, neuroaesthetics described how the organization of artworks may reflect the properties of the human visual system [73]. What can we say instead about performing art, and dance in particular? In this context, a few neurocognitive hypotheses, focusing on how the human brain processes other people's movements, have led to Functional Magnetic Resonance Imaging (fMRI) studies describing stronger brain responses in mirror neuron areas (mainly parietal and premotor regions [52]) when we observe a movement belonging to our own motor repertoire [4, 5, 12, 45]. Overall, these studies have suggested a close link between the neural processes activated when we perform a movement and those triggered by movement observation.

When we observe a work of art, there are at least two ways of receiving an aesthetic experience. The first one is driven by the properties of the stimulus. For example, the sight of a pleasant object can evoke some aesthetic pleasure *per se*, even if the observer is not intentionally looking for the beauty in the object (implicit aesthetics). On the other hand, when an object is in a specific context, such as an art museum, the sensory processing of the stimuli is combined with the observer's intention to find its beauty (explicit aesthetics).

In order to investigate implicit aesthetics from a sensorimotor point of view, Calvo-Merino et al. [6] used fMRI to record brain activity in participants while they were watching a series of short dance video clips depicting different dance movements (half from classical ballet, half from capoeira). The aim of the study was to investigate whether our brain responds differently when we see movements that we like as compared to movements that we like less (in an implicit manner). For this reason, participants were instructed to look at the dance videos, and were asked to rate the videos according to their preference only after they had finished the scanning session. The authors described some areas sensitive to aesthetics (i.e. that respond more strongly when the participants observed preferred movements) localized in the early visual cortex, in the medial region, and in the premotor cortex of the right hemisphere. Interestingly, while these visual (and premotor) regions participate in the daily process of watching movements, the premotor cortex is also considered a mirror neuron area, suggesting that the degree of covert simulation of the movements is correlated to the level of liking.

Besides identifying brain areas sensitive to implicit aesthetics, this study described the kinematic properties of the dance movements that participants liked more, and that evoked stronger brain activity in the above mentioned aesthetic-related regions. The selected movements were classified on the bases of four kinematic properties: speed, body part used, direction of movement, and

vertical and horizontal displacement. The results show that, on average, whole body movements such as jumping on the spot or significant displacements of the entire body in space (e.g., horizontal jumps) are preferred. Obviously, this study investigated only a reduced number of movements, hence we expect that future investigations in collaboration with the art community will extend our knowledge of the aesthetic of dance.

Another series of studies have investigated other aspects of the aesthetic processing. For instance, Emily Cross and colleagues [13] conducted an fMRI study to understand how the observers' aesthetic evaluation of dance movements is related to the observers' physical ability to reproduce the movements they watch. The authors registered brain activity while participants performed an explicit aesthetic evaluation of a series of dance movements. At the same time, participants also rated how well they thought they could physically replicate the movement they were watching. The results showed stronger brain responses in occipito-temporal and parietal regions when participants watched videos that they liked more and that they considered more difficult to perform.

Both the studies of Calvo-Merino et al. [6] and Cross et al. [13] argue that the properties of the stimuli (i.e., related to the amount and difficulty of movements) evoke aesthetic-related activity in a series of brain regions often associated with the observation of actions. These studies, therefore, support the embodied aesthetic hypothesis, suggesting that the simulation of observed movements may be part of the aesthetic process, whether this happens in an implicit or in an explicit manner.

Very recently, Jola et al. [34] moved a step forward and carried out a study to investigate how covert simulation of actions is modulated by the level of visual experience that the observer has of the perceived movement. They used single-pulse Transcranial Magnetic Stimulation (TMS) to measure cortical excitability in three groups of observers with different levels of involvement in dance habits: some of them often went to Ballet performances (frequent ballet spectators), some to Indian dance performances (frequent Indian spectators) while other had no experience of watching any dance performance in particular. Cortical excitability was measured while participants watched life dance performances of Ballet and Indian dance. The results showed that the three groups differed in the amplitude of the motor evoked potentials (a measure of cortical excitability and hence of motor simulation) while watching the different dance styles. Therefore, the authors concluded that during dance observation the spectators' motor responses could be enhanced as a function of their visual experience or of the tendency to imaginatively transpose oneself into the fictional character. This evidence suggests again that the observers covertly simulate the perceived movements, and that this simulation is stronger when they have more visual familiarity with the observed dance.

Another issue that is often discussed in the aesthetic dance literature is the ecological validity of the results. Indeed, most neuroimaging studies employ short video clips to investigate the neural correlates of aesthetic experience. This allows greater experimental control over several important parameters when recording brain activity and minimizes the effect of uncontrolled factors. Importantly, Jola et al. have proposed a more ecological approach [34, 35] moving from standardized

dance video clips to real performance, either in the lab or inside the dance theatre (Jola et al. [36]; an elaborate discussion on this subject can be read in [11]).

Aesthetic and the Performed Arts

Sensorimotor embodiment is not only called into action during the viewing of dance performances, but also in the aesthetic appreciation of static artworks. In a seminal study, Di Dio et al. [18] showed a greater activation of the ventral premotor cortex and of posterior parietal cortex during observation of Classical and Renaissance human body sculptures that respected the gold section, an index of body proportion that is accepted as a normative Western representation of beauty. In a similar vein, Battaglia et al. [2] explored the effects of viewing Michelangelo's 'Expulsion from Paradise' fresco on corticospinal excitability. They found higher motor activity during observation of the action in the fresco compared to that recorded for a real hand photographed in the same pose. The results point towards a close relationship between the aesthetic quality of a work and the perception of implied movement within it. Similarly, an electroencephalographic (EEG) experiment [64] has explored whether the motor system is somehow triggered by passive observation of abstract art where the action of the artist can only be inferred (i.e., Lucio Fontana's slashed canvas). The results showed that these stimuli did affect the activity of the motor cortex (when compared to graphically modified versions of them), while familiarity did not change the motor involvement. It is still unclear, though, whether the brushstrokes (or cuts in this case) on canvas may transmit enough motor cues to represent the gestures that crated them and, more importantly, whether this process of embodiment would contribute to the affective appreciation of works of art. In other words, the link between motor activity and aesthetic and emotional feelings in art is still unclear.

There is, however, some evidence to suggest a match between affective states and motor activity, albeit in another context. For instance, Kornysheva and colleagues [39] found that transient disruption (by means of repetitive TMS) of the ventral premotor cortex affects the preference responses to rhythm. Other scholars suggested a bidirectional association between emotion and motor behavior: for instance, botox injections in facial muscles decreased the strength of emotional experience [16] and of amigdala activity [29]. And, in the monkey brain, insula stimulation (insula being an integral part of the system involved in affective processing) evokes emotional behaviors [8]. More direct evidence comes from a recent psychophysical investigation by Leder and colleagues [40], in which the authors tested covert simulation by manipulating the apparent painter's hand gestures present on the canvas in the form of static brushstrokes. In particular, the participants were asked to execute – with their (hidden from view) dominant hand – either a stroking or stippling movement while observing images of pointillism-style (e.g., Seurat) or stroke-style paintings (e.g., van Gogh). Executing either congruent or incongruent movements simultaneously with the

observation of the paintings increased or decreased aesthetic appreciation, respectively. This clearly demonstrates that motor simulation may systematically accompany the aesthetic appraisal of stimuli characterized by brushstrokes and therefore more prone to elicit an embodiment phenomenon in the brain of the observer. However important we may regard these findings, they do not allow us to draw definitive conclusions as far as the effects of motor activity on aesthetic states is concerned.

Aesthetic in the Performer's Body

Embodied aesthetic experience of watching movements is inherently affected by the aesthetic properties of the performers' body. Among the different stimuli we perceive, the aesthetic evaluation of the human body has a particular importance for our survival, being also related to attractiveness judgments and mate selection [9]. Considerable evidence has been accumulated in recent years supporting the notion that both facial and bodily physical attractiveness are 'health certifications' and thus represent honest signals of phenotypic and genetic quality [26]. Indeed, symmetry and consistency of movements [20, 28], on the one hand, and distribution and overall amount of body fat [22, 30, 56], on the other, are believed to have a strong impact on health and reproductive potential.

The ideal body shape and weight, however, seem to be influenced by sociocultural factors. It is well known that culture and media play a role in changing the aesthetic canons and the ideals of body beauty that are shared in a society. In Western societies especially a tendency for individuals to idealise thin body shapes has been noted, leading to the internalization of the ideal of beauty in a lean body. This is not only well documented in adults of both genders [23] but also appears to be present from earlier ages [48, 62], with strong implications for the well-being and body satisfaction of many adolescents and adult individuals [3, 54].

However, the neurocognitive mechanisms underpinning the influence of media exposure on the aesthetic appreciation of the body are still not well understood [58]. A possible mechanism to explain the influence of perceptual adaptation on the ideals of body beauty stems from norm-coding models of perceptual adaptation. In this view, the perception of the members of homogenous classes that share common configurations, such as faces and bodies, is based on the features of a template representation that is used as a reference point to perceive other exemplars [70]. The members that are more similar to the template receive higher aesthetic appreciation [71]. Such norm-based representations may be shaped by experience [51], thus favouring a preference for more familiar stimuli in aesthetic appreciation. Accordingly, recent studies have demonstrated that familiarity modulates the attractiveness judgments of faces [51] and also our perceptions of what is normal or average in a face [41]. Fewer studies have instead investigated how experience modulates body aesthetic perception. Winkler and Rhodes [72] showed that exposure to both thin and round bodies modulates normality judgments, with a tendency to

consider more normal and more attractive the adapted weight. Another study [25] provided evidence that the effects of body exposure were correlated with the degree of body dissatisfaction and internalization of Western ideals. This finding supports the relationship between the effects of perceptual adaptation and the development of body image disturbance. It is noteworthy for the purpose of the present chapter that, in keeping with the effects of motor and perceptual familiarity with movements, perceptual familiarity with given body forms strongly affects the aesthetic appreciation of the beauty of the body.

Although several studies have attempted an investigation of the distinct contributions of body motion and body shape, few studies have addressed the issue of how the perception of body motion and body shapes interact in body aesthetic perception. A recent study by Johnson and Tassinary [33] investigated the possibility that perceived attractiveness reflects the compatibility of biological sex and gender cues (i.e., masculinity and femininity as specified within the society). They presented computer-generated animations or static and dynamic line-drawings and requested participants to rate each stimulus for sex categorisation, perceived masculinity, femininity, and attractiveness. The results showed that perceived attractiveness co-varies with body shape and motion because they co-specify social percept (e.g., biological sex and gender, respectively) that may be either compatible or incompatible. Higher attractiveness judgements are typically attributed to stimuli in which body form and body motion cues are compatible. Recently, Cazzato et al. [9] asked participants to provide attractiveness, beauty and liking ratings on the shape and posture of virtual renderings of human bodies with variable body size and implied motion. Results showed that aesthetic judgements both for shape and posture of human models were influenced by body size and implied motion, with a preference for thinner and more dynamic stimuli. Interestingly, implied motion reduced the impact of extreme body sizes on the aesthetic evaluation of body postures, while body size variations did not affect the preference for more dynamic stimuli. Thus, perceived attractiveness is determined by the interaction between body motion and body shape cues.

The visual processing of the body involves specific neural structures that are at least partially segregated from those involved in the visual processing of object and face shapes [47]. Viewing non-facial body parts selectively engenders bilateral activation of a lateral occipito-temporal region called the extrastriate body area (EBA; Downing et al. [19]). EBA is activated by viewing partial or whole movies, photographs or sketchy drawings of human bodies and body parts but not faces and objects [47]. In contrast to the response pattern of areas belonging to the mirror neuron system that matches action observation and execution [52], EBA is involved in the visual processing of static human body forms [47]. In particular, magnetic stimulation of EBA impairs the visual discrimination of the form of human body parts, but not of face and object parts [49, 66, 68]. Furthermore, a neuropsychological study [43] showed that patients with lesions encompassing EBA were impaired in the visual discrimination of body parts but not of face and object parts, thus providing evidence for the existence of body form visual agnosia. More recent fMRI studies have demonstrated the existence of another body selective area that is

anatomically distinct from EBA. This area, located in the fusiform gyrus and known as fusiform body area (FBA), responds selectively to whole bodies and body parts and is adjacent to and partly overlaps with the fusiform face area (FFA) [46], which is selectively activated by visual presentation of human faces [37]. FBA responds to viewing complex body configurations but not single body parts [60]. This suggests that, on analogy with the role of FFA in the configural processing of faces, FBA is specifically devoted to the configural processing of whole bodies. In contrast, EBA may be more involved in the detail-based processing of single parts of the human body [60, 67].

As previously noted, body movements induce displacements of body parts along many directions, changing their overall configuration. In contrast, the general structure of the face and the relations among body parts is not altered during facial movements. Indeed, while faces may be processed as undifferentiated wholes [42], configural processing of bodies seems to be based on the spatial relationships among body parts in the context of the whole-body space [50]. In this context, the processing of whole body configuration needs to take into account the displacement induced by ongoing movements. In keeping with this view, Urgesi, Calvo-Merino and co-workers showed that body configural processing may imply the embodiment of observed postures onto the observer's sensorimotor representations [67]. In that study, configural body processing was investigated using the body inversion effect, which refers to the remarkable disruption in processing whole bodies when displayed upside down as compared with their canonical position. This effect is found for faces [42] and bodies [50] and is an indicator of configural processing. Indeed, inversion of faces and body stimuli is thought to prevent their configural processing, leaving only the detail-based processing of their single parts that is more typically used for less familiar objects. In the study by Urgesi et al. [67] participants were required to discriminate, in a matching to sample task, between two different dance postures shown in an upright or inverted position. The dancer model was kept constant across the different postures. Repetitive transcranial magnetic stimulation (rTMS) was applied to interfere with neural activity of EBA, ventral-premotor cortex and superior parietal lobe during task performance. Stimulation of EBA selectively impaired discrimination of inverted postures but did not affect discrimination of upright postures. Conversely, stimulation of fronto-parietal areas selectively impaired discrimination of upright body postures but not of inverted body postures. These effects led to an increase of the body inversion effects after interference with EBA activity and a suppression of it after interference with fronto-parietal areas. The results of this study suggest that while body representation in the extrastriate cortex is involved in the local processing of body-part details, the simulative representation of the body in the mirror neuron areas underpins the configural processing of whole body postures. Visual and simulative representation of the body may have different, complementary roles in its aesthetic appreciation.

In a companion rTMS study, Calvo-Merino et al. [7] presented the same dance postures used in Urgesi et al. [67], but asked participants to rate which one of two dance postures they liked more. Results demonstrated that EBA rTMS blunted aesthetic judgments about body postures relative to rTMS of ventralpremotor cortex,

thus disrupting the pattern of aesthetic preference observed for each participant in a rating session without stimulation. The authors interpreted these results within the framework of the above mentioned "dual-route model" of visual body perception [67], suggesting that disruption of the local system, housed in the EBA region, blunted aesthetic sensitivity. By contrast, the disruption of the ventral premotor cortex, involved in the configural processing of whole body postures, heightened aesthetic sensitivity.

All in all, the results suggest that simulative, configural and visual, local body processing routes seem to provide complementary information to body aesthetic perception. They also point to the need for future neuroscientific studies to investigate further the potential of body forms and the likely interaction between action and form cues in driving the appreciation of the beauty of the body. This is particularly important for a better understanding of the neural bases of the aesthetic appreciation of the body in the healthy brain and in body image disorders. In keeping with this view, studies have shown that the activity of lateral and medial occipito-temporal areas involved in body processing is modulated by the perceptual adaptation to extreme body weight [31]. Furthermore, the neurofunctional alteration of these areas is associated with body image disturbance, such us body size overestimation and negative evaluation of one's own body, in patients with Eating Disorder [59, 63].

Conclusion

We have revised recent studies exploring the relative contribution of body form and body action in aesthetic appreciation. Also, we have explored another factor classically associated with aesthetic and preference: the concept of familiarity, when previous exposure to the stimuli (for example, dancers watching dance) influences brain responses during an aesthetic experience.

Evidence has shown that, generally speaking, motor areas are active while watching artistic stimuli [10, 32], however we may argue that these findings report a general affective arousal in response to art that it is unrelated to motor simulation. As a matter of fact, positive as well as negative emotions equally facilitate motor activity [27], presumably preparing approach/avoidance behavior. Nonetheless, the works cited in this chapter appear to converge on the fact that a crucial element of response to bodily aesthetic stimuli consists in the activation of embodied mechanisms encompassing the simulation of actions, emotions and corporeal sensations [17, 24]. Finally, we have seen that embodied aesthetic experience of perceiving bodies and their actions is inherently affected by the aesthetic properties of the performers' body. Although cognitive neuroscience has classically separated static body and movement brain mechanisms, neural activity in these areas is strongly interconnected, shaping a brain network for human body perception. As such, the embodied

(continued)

aesthetic hypothesis positing that sensory and motor activation is a critical element for the affective response to art may indeed provide explanations as to why some people find enjoyment, for instance, in an evening at the opera house or a day in an art museum.

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Chapter 8
The Aesthetic Stance – On the Conditions and Consequences of Becoming a Beholder

Maria Brincker

Abstract What does it mean to be an aesthetic beholder? Is it different than simply being a perceiver? Most theories of aesthetic perception focus on (1) features of the perceived object and its presentation or (2) on psychological evaluative or emotional responses and intentions of perceiver and artist. In this chapter I propose that we need to look at the process of engaged perception itself, and further that this temporal process of becoming a beholder must be understood in its embodied, contextual and dynamic specificity. Through both phenomenological and neuroscientific explorations I analyze what is characteristic about a more "aesthetic stance" and argue that there is a certain asymmetry between beholder and beheld, which has to do with a disengagement of goal-directed action, and which allows for other kinds of perceptual involvement than in a more "practical stance". It is a multidisciplinary project integrating a sensorimotor notion of aesthetic affordances, eighteenth century philosophy, and large-scale brain network findings. What ensues is a new dynamic framework for future empirical and theoretical research on aesthetic perception.

Keywords Aesthetic stance • Aesthetic affordance • Engaged perception • Neuroaesthetics • Motor responses

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M. Brincker (✉)
Department of Philosophy, University of Massachusetts, Boston, MA, USA
e-mail: mariabrincker@gmail.com

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The Need for a More Dynamic and Contextual Neuro-Aesthetics

Can science help us understand our engagements with art and aesthetic experiences in general? In recent years the field of "neuro-aesthetics" has exploded – articles and popular books on the topic seemingly popping up everywhere. Some humanists remain skeptical of these empirical endeavors and wonder what the many colorful brain scans can actually tell us about our deeply cultural aesthetic practices. I am sympathetic to some such criticisms.[1] However, this chapter attempts to show that neuroscience can be an incredible resource for aesthetics – if indeed scientists take the dynamic, social and environmental complexities of both aesthetic experience and brain function more seriously. I shall introduce the notion of the "aesthetic stance" to explore the conditions and consequences of becoming a beholder and then introduce a new dynamic approach to empirical aesthetics. However, to see why such a framework could advance the field first a look at some high-profile work in neuro-aesthetics:

- **Beauty & reward centers**: Semir Zeki's lab has found that activity in frontal reward centers correlate with reported experiences of beauty, and consequently published an article entitled "Towards a Brain based Theory of Beauty".[2] The imaging findings appear solid, but one might ask whether the relation to reward centers alone does much to explain: (1) Why beauty is pleasurable to perceive? (2) What beauty is, or (3) how beauty relates to art & aesthetics (as we likewise can appreciate the ugly, grotesque or horrific).
- **Visual gestalts & attractors**: Ramachandran has proposed a series of "universal principles of art"[3] mostly linked to gestalt principles and visual-reward connections. His theory thus begins to answer why certain perceptual features are more pleasing and attention grabbing than others. However, is it a problem that hedonic perception of say junk food and porn seems to be core examples?[4]
- **Movement perception & mirror neurons**: Findings of mirror neurons has been applied to aesthetics by Freedberg & Gallese, suggesting an intimate relation between the motor system of the perceiver and the perceived, represented or implied movements in various art forms. Thus, the question of how art moves us is posed empirically. But this research has focused on the *overlap* between regular

[1] Given certain trends in neuroaesthetics some skepticism is understandable, e.g. Noë points out in his NYtimes piece "Art & the limits of neuroscience" that many simply apply what is known about perception to the experience of art [51]. This seems confirmed in the examples below.

[2] Ishizu and Zeki [41].

[3] Ramachandran and Hirstein [57], chap. 7 & 8 in Ramachandran [56].

[4] Pornography, with its easily digestible emotional and perceptual exaggerations, is almost the optimal artwork [4] given Ramachandron's "peak shift principle". However, in a recent book Deidre Barrett argues that such supernormal stimuli drive our junk-food addictions and our contemporary culture's fast and easy imagery. Thus, whether 'peak shift', 'grouping' etc. are universal principles of art is questionable. For counter-examples see Tyler's "Is art lawful?" [63].

and aesthetic perceptions and so far not investigated potential dissimilarities.[5] Further, motor responses have not been explored as dynamically influenced by contextual affordances.[6]

As exemplified here current neuroaesthetics often target perception and emotional responses generally, and hasn't so far provided an empirical story of what makes aesthetic experiences special.[7] This has lead some to propose that aesthetics ought to ignore neuroscience.[8] I shall try to show that the impediments of empirical approaches might not be the physiology itself as much as the theories and paradigms typically used to study it.

What Is Special About Aesthetic Experiences?

Baumgarten is seen as the father of the modern term 'aesthetic' as he imported this ancient Greek word for 'sentient' or 'pertaining to the senses' to its modern use.[9] He and many other theoreticians have attempted to define this more narrow use, some via beauty and appraisal thereof, some via broader hedonic/emotional responses in the viewer, some via communication of intentions, some via aesthetic institutions or features of objects defined as aesthetic etc.[10] Though much can be learned from these definitions, they each seems to fall short of capturing the open-endedness of what can constitute an aesthetic experience.[11]

Hence, rather than predefining inherently aesthetic parameters of object and/or perceiver, I will start with the more relational and embodied question of what it means to be an aesthetic beholder, and – perhaps more importantly – what conditions are conducive to becoming an aesthetic beholder. A core empirical issue here is whether aesthetic experiences are constituted differently procedurally than regular perceptual experiences. Thus, the possibility is explored that aesthetic experiences are not individuated as a subgroup of perceptual experiences simply by their special *content* or emotional *consequences*, but rather by their very *process* of

[5] Freedberg and Gallese [27].

[6] Mirror neurons and their broader sensorimotor and affordance context is discussed further down.

[7] Similar issues pertain to work by e.g. vision scientists like Margaret Livingstone [49], and memory specialists like Eric Kandel [43]. Each contribute insights but there is a vacuum of theory of what the aesthetic realm actually is.

[8] Noë e.g. concludes: "…neuroscience, which looks at events in the brains of individual people and can do no more than describe and analyze them, may just be the wrong kind of empirical science for understanding art." Noë unfairly relegates neuroscience to matters 'under the skull' to contrast to his own 'externalist' approach. Cognitive neuroscience of course involves external and social stimuli, which admittedly often due to individualistic and modular assumptions are poorly chosen – but that is another issue.

[9] Baumgarten [5].

[10] See e.g. Bell [6], Langer [46], Collingwood [15], Gombrich [35].

[11] Adorno famously said: "It is self-evident that nothing concerning art is self-evident" [1].

perceptual engagement. I introduce a theoretical construct labeled "the aesthetic stance" to capture the temporally extended and complex processes that seem to characterize the broad embodied conditions of aesthetic experiences and responses. To fill in this basic framework, first a discussion of some relevant phenomenological and empirical observations.

The Non-Goal-Directed Aspect of Aesthetic Experience

The question of what it means to be an aesthetic beholder as opposed to an ordinary perceiver is not new. Already in the eighteenth & nineteenth century many thinkers from Shaftesbury to Kant and Schopenhauer noted that one of the main characteristics of the aesthetic beholder was that of a certain "disinterestedness" and "psychological distance".[12] The core idea being that to have genuine aesthetic experiences one had to somehow be disinterested in the 'object as an object', and thus give up one's ordinary practical and goal-directed attitude to the perceived scene. It is this lack of goal-orientation that gives room for a "free play of the imagination" as Kant calls it.[13] Though my account is rather different from that of Kant, these two connected insights of his will figure centrally in the aesthetic stance hypothesis proposed in the following:

- The idea that a mutually opposing dynamic exists between a practical goal-directed attitude and a more aesthetic attitude.
- The link between the non-goal-directedness of the aesthetic stance and the possibility for "freedom of imagination" and deeper subjective involvement and contemplation.

The Emotional and Bodily Involvement

It must be stressed that the aesthetic "distance" advocated here strictly pertains to in goal-directed actions and not to emotional or bodily involvement. Many have rightly criticized Kant's idea of disinterestedness as he much like Plato shunned the emotions, and saw individual desires as a hindrance for aesthetic judgments. All the way back to Aristotle and Hume, thinkers have to the contrary highlighted the importance and intimate connection between emotions and aesthetic experiences.[14] Our metaphoric language about aesthetic experiences attests to this undeniable importance of emotional, visceral and bodily factors. I.e. artworks can be 'touching', 'moving', 'chilling', 'nauseating' etc. Several empirical studies have now explored how aesthetic

[12] See Cupchik [17] for a great overview.

[13] See Kant [44].

[14] Jesse Prinz has several great papers on the issue see e.g. Prinz [53]. See also Freedberg [26].

responses relate to changes in mood and emotional arousal. Kendall Eskine and colleagues have for example recently looked at the effect of induced autonomic and emotional states on aesthetic responses and found that the induced bodily states of fear can be reinterpreted as awe and sublimity in the new aesthetic context.[15] Further it appears, from a recent study by the same group, that perceived size and wall position of an artwork is influenced by prior knowledge about the social status of the artist.[16]

Another line of research investigates how the perception of artworks literally can move our bodies and minds by modulating our sensorimotor circuits. I mentioned the Freedberg and Gallese study on motor facilitation above. They found that perceivers' cortically "mirror" not only the actions of the bodies seen in representational art, but also the implied actions seen in the style and execution of abstract artworks.[17] It is now becoming increasingly clear that motor responses to perceptual stimuli are highly dynamic and vary greatly depending on the broader practical scenario and the social and physical affordances that the perceiver is presented with.[18] We must therefore study embodied responses not only to the content or style of an artwork, but to its mode of presentation, i.e. the very fact that it is representational, on stage, and that you can walk around it etc. The motor and emotional responses must be understood within these larger contextual dynamics. My hypothesis is that there are "aesthetic affordances", i.e. structural action invitations, which are instrumental in inducing an aesthetic rather than say a practical stance.[19]

Aesthetic Affordances and Motor Responses

Whether we are at a play, inspecting a museum artwork or taking in a scenic view, aesthetic experiences generally show an asymmetric relation between beholder (perceiver) and beheld (perceived). I suggest that this asymmetry is a hallmark of

[15] See Eskine et al. [24]. Interesting study showing how fear induced by watching horror movies can yield a feeling of the sublime in the context of visual art, and more so than other emotions such as happiness or general arousal.

[16] Jesse Prinz, Presentation at CUNY GC and personal communication.

[17] Freedberg and Gallese [27].

[18] Newman-Norlund et al. [50], Fuljii et al. [28] and Sartori et al. [58]. See also Brincker [9,10] for an analysis of the problems with the classic mirror neuron interpretations and arguments for the alternative "social affordance" hypothesis. See also Gallagher [30] of a compatible criticism of mirror neurons and how they have been used in the neuroscientific theories of aesthetics. Due to his interest in intersubjectivity he focuses on the difference between affordances of 'live' versus representational art forms. I argue to the contrary that theater and performance art also presents an 'edge of action' asymmetry and thus affords a "non interactive" response.

[19] James and Eleanor Gibson were the first to coin the term 'affordances' [32], but the concept has roots further back. The affordance concept became central to the experimental area of ecological psychology and classic exp. such as E. Gibson and Walk's [33] "visual cliff" paradigm and Warren's [66] stair-climbing experiments.

classic aesthetic experiences,[20] which is procedurally induced and maintained and dynamically linked to a non-goal-directed attitude.

In terms of aesthetic affordances, a concrete question is whether overall scenarios, which do not invite us to act, can induce this asymmetry. I.e. in many aesthetic settings the social and material context does not call for targeted action but rather halts us (affords a disengagement of goal directed action), and as a result the aesthetic content seems to afford perception tout court.[21] We can contrast such aesthetic "beholding" affordances to perceptual scenarios in which the very structure of the environment calls for active participation and where tools and people around us not only afford interaction, but often demand it (e.g. when hanging a painting).

The way our perceptual environment affords various action engagements has been experimentally assessed not only at the level of overt action response but also at the level of regional and cellular modulation in our cortical sensorimotor systems.[22] Cortical modulations have thus been shown to track the affordances or teleological opportunities around us. I have argued elsewhere that the so embattled function of mirror neurons should be understood as a part of this function. Classically described mirror neurons are notably modulated not by afforded actions but actual ongoing actions of either self or others.[23] The problem with popular interpretations is that these neurons have been idealized and lifted out of their broader neurological context, and have thus been misconstrued as forming an insular 'mirror mechanism' by which observed or implied actions automatically get 'covertly simulated'.[24] Evidence however suggests that our sensorimotor circuits integrate our own ongoing temporal and hierarchical action plans and reward evaluations with the perceived actions and affordances around us.[25] The resulting dynamic process, involving large fronto-parietal and sub-cortical areas, is pivotal for the ability to coordinate and chose our actions, and it is as an integrated part of this process that mirror neurons are likely to help us predict and track the actions of others.

Now why are these debates over sensorimotor circuits important to the aesthetic stance hypothesis? Note that if responses to affordances and action perception are dynamically integrated with our action planning, then we should not expect our motor response to depend simply on perceptual features within an artwork but more broadly take the perceptual context into account. Further, this lends tentative support to the hypothesis that modes of presentation like images not only has different

[20] Interestingly many contemporary artists experiments with breaking down the "fourth wall" thus complicates the classic beholder-beheld relation. I am interested in exploring how such artistic experiments change the aesthetic experience as well as the neurological processes involved, however in this paper I focus on the classic asymmetric beholder-beheld relation.

[21] One might say that the original meaning of aesthetic as "pertaining to the senses" thus in terms of an exclusive affordance can be given new weight.

[22] For neurological findings of "affordance modulation" in fronto-parietal areas see e.g. Grezes and Decety [36], Grèzes et al. [37]; Ferrari et al. [25] and Newman-Norlund et al. [50].

[23] Gallese et al. [31].

[24] See Brincker [9, 10] for an extensive discussion of this "caricature view" and see Gallagher [29] and Zahavi [68] for critiques of the simulation part.

[25] For a dissection of both monkey and human data see also Brincker [9].

affordances, but affords a sort of a 'halt' to our own ongoing environmental interactions. Most mirror neuron research has ignored the dynamics of such affordances, which is obvious as fMRI and behavioral paradigms typically use perception of images as experimental stimuli and yet generalize their conclusions as being about perception in general. However, from an affordance standpoint perception of action as image content does not afford the perceiver an overt complimentary response beyond simply watching what is being presented.[26] I propose (1) that sensorimotor circuits normally dynamically integrate own action plans with the overall perceived action affordances, and (2) that they in the case of image perception, where own action plans are halted due to the asymmetry of presentation, show a tendency to 'mirror', i.e. channel the implied and actual actions perceived rather than engaging with them. This hypothesis has now been indirectly supported by several studies exploring more interactive and competitive experimental paradigms, which clearly shows a much more complex response[27] than the more mirroring response found using more imitative affordances.

"Edge of Action" Helps Induce Beholding-Beheld Asymmetry

Thus, these neuroscientific considerations indicate that our motor responses vary according not only to perceived content but to broader practical contextual features. This is important, as my hypothesis is that there are aesthetic affordances, which invite a disengagement of action response or "non-goal-directed attitude". Notably, most artistic media (images, sculptures, stages, writings, recordings etc.) seems to invite asymmetric, non-interactive modes of perception, in that the beholder perceives the beheld but not the other way around. The further suggestion is that this asymmetry and lack of reciprocity in the aesthetic affordances precisely invites a different kind of engagement. Artworks thus typically brings us to an "edge of action", an affordance of perceptual engagement but yet non-action, which opens up possibilities for using our minds – and brains – in ways we do not in our regular practically engaged modes of perception.[28]

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[26] Brincker [9,10], note that if images afford 'non-engagement' then the paradigm of using images to look for mirror responses has a rather problematic inherent 'imitation bias'.

[27] Newman-Norlund et al. [50], Fuljii et al. [28] and Sartori et al. [58].

[28] Interestingly in this context, much contemporary theater and performance art purposefully "break the 4th wall" and precisely demand audience participation. Marina Abramowich's "the artist is present" is a good example, where members of the audience where invited to sit silently face to face with the artist – thus invited *into* the artwork. However, other layers of traditional asymmetric framing properties were kept in place; larger audiences were classic beholders "outside" the artwork, and the inaction of "sitting silently" can be seen as an instructional "edge of action". However, breaking the 4th wall means that the beholder to some degree simultaneously becomes beheld and the artwork therefore includes psychological reactions as a part of its content – but maybe many traditional works does as well.

This 'edge of action' can also be seen in aesthetic engagements with non-artworks. The typical contexts of aesthetic moments in nature are remarkable. How often is it when we reach the top of the mountain, the edge of the cliff, the border of the water that we see the beauty of the landscape – which arguably also was in front of our eyes moments before? Similarly, environments, which have been rendered "un-actable", such industrial decay, or micro-/macroscopic images of the unreachable all seem to invite aesthetic attention. This might also play into artistic choices in installation and performance art for example. Danto talked about the "transfiguration of the common place",[29] and the fact that Duchamp – consciously or not – decided to turn his urinal upside down can be seen as an important aesthetic affordance.

Thus, aesthetic affordances of non-interaction are key to the establishment of an embodied aesthetic stance in the observer. However, it is crucial to note that such affordances are neither necessary nor sufficient for aesthetic engagement: e.g. we daily look at images with goal-directed eyes, and often take an aesthetic stance towards practical objects. Take looking at an apple. We see it in the fruit bowl, want to eat it, and go ahead with a 'grab-to-eat' motion. Then the motion is arrested as e.g. inner distraction allows a sight of how the light catches the colors of its skin. We pull back in an aesthetic glance at the apple – before proceeding to eat it. The 'edge of action' here seems to be reached not so much by the contextual frames as by the interaction between salient visual properties and inner occupations such as a day-dreaming mind.

In brief, I have focused on the role of 'edges of action' as a set of contextual affordances for establishing an aesthetic stance. Such concrete aesthetic affordances have been generally ignored. However, there are other external and internal key aspects of becoming a beholder.

The Role of "The Other" & The Relation to Vulnerability & Appraisal

Introducing the idea of aesthetic experiences as typically happening on "the edge action", I drew attention to "non-art" aesthetic experiences of e.g. a sunset or an apple. What is interesting about both artworks and other artifacts (the abandoned building, a painting by an elephant, or a bench with a view) is that that there is a concrete or abstract other that often is physically absent yet present in the experience. Many aesthetic theorists have sought to use the role of the artist, designer, aesthetic community, institution etc. and their actions, intentions and emotions for understanding what art is.[30] Again, I shall not pre-define but rather allow a heterogeneous role of the other in aesthetic experiences. However, in specific cases this need

[29] Danto [19]. With the idea of aesthetic affordance to halt habitual and goal-directed action his famous dictum can be seen in a new light.

[30] Collingwood [15], Dickie [23], Danto [20]. For a recent empirically minded intentional theory see Pignocchi [52].

not be an unstructured nor empirically impenetrable heterogeneity. I hypothesize a dynamic interplay between the beholder's specific consideration of the virtual other(s) for the concrete psychological processes of appraisal and also the feeling of vulnerability in letting the artist as other in. Further, the other is not only present 'behind' the aesthetic object, but also as 'co-beholder', and I propose that the dynamics of this social influence again depends on the concrete affordances of the specific social relation, the actual or virtual presence etc.

In ordinary face-to-face interactions there is a constant demand to plan and execute reactions as we are seen by the other. But if beholding involves an asymmetry of interaction, a halting of goal-oriented navigation, then this might allow us to open ourselves to an otherwise difficult intimacy with the perceptual experience and virtual other. In other words, the aesthetic stance predicts a potential for vulnerability and depth of subjective involvement in aesthetic experience. In the aesthetic stance we can allow ourselves to be moved and – as we have seen above – this influence of the beheld on the beholder can to a large extent be sensorimotor, emotional and happen outside of voluntary control.

I propose that the psychological process of appraisal might play a role as a defense mechanism and gatekeeper of how far we will let ourselves be invaded by the aesthetic object or experience. When the other is out of sight – say at a desolate waterfall – we might still engage in appraisal processes of just how beautiful or meditation inducing this water is (possibly intensified by a guidebook or an Instagram). But my claim is that the way the other is present dynamically modulates appraisal. It would thus be odd to judge a painting by a toddler or by said elephant with the same critical fervor as applied at the MoMa. We need not strictly demarcate 'art' or 'the Art world' to make sense of these differences – to the contrary that would erase the details of social influence and of borderline cases. When the elephant painting doesn't pretend to be anything but just that, how could it harm us? In a museum or a concert hall there is an underlying sense that one might be in front of a pinnacle of human civilization. Along with the ticket price this urges the question: is this truly good? Am I enjoying it? Am I impressed? Should I be? etc. In brief, artworks that claim to be something affords their beholder to appraise that exact claim.

The role of the other is a big issue. My point is merely to draw attention to how – given the dynamic aesthetic stance framework – one can discuss the issue in new ways.

The Question of Beauty – And Other Perceptual Attractors

In art theory the once so central question of beauty has become increasingly marginalized due in part to the acknowledgement that lots of important artworks do not aim at beauty. However, the neuroscience of art is still preoccupied with the experience and appraisal of beauty. So much so that neuro-aesthetics in a recent review simply is defined as a field "concerned with the neural underpinnings of aesthetic experience

of beauty, particularly in visual art".[31] This narrow definition is not universally shared, but issues of beauty along with other questions of preference and emotional impact etc. has indeed guided much research. This discrepancy between the practice of neuroscience and that of artists and theorists does seem to highlight a lack of productive interdisciplinary communication. Under a dynamic approach, beauty can be hypothesized as a powerful aspect of how we are brought into and maintain the aesthetic stance. But beauty is not the only factor for emotional perceptual judgment, nor the only route to the aesthetic stance. Accordingly, the aesthetic powers of beauty – and ugliness – can be acknowledged without narrowing the scope of the aesthetic.

Zeki and other neuroscientists often seem to treat judgments of beauty or the broader appreciation responses (like/don't like) as the endpoint of an aesthetic experience. On the aesthetic stance frame beauty and appraisal are seen primarily as part of the processes bringing us into, trusting and maintaining certain aesthetic experiences. We can thus also have non-beautiful aesthetic experiences though these might rely other emotional attractors and/or top-down processes of maintaining the experience. The process of sitting through a Lars von Trier movie, and other cases where artists deliberately make their audience uncomfortable, can exemplify this. The beholder's decision to stay does not here hinge on beauty but on e.g. whether trust is abused in a non-abusive way, i.e. whether the experience gives us something worth keeping – worth beholding.

The Ethical and Political Force of Aesthetics

The issues of the other, vulnerability, trust and abuse thereof, all alert us to another aspect of aesthetics that is rarely dealt with in neuroscience: namely, the ethical and political relevance, power and responsibilities of this area of human social interaction.[32] From the perspective of the aesthetic stance some of the main questions to be explored is the relationship between the ethical responsibility of the artist and institutions given the psychological impact of aesthetic experiences. The dangers, powers and consequences of propaganda, political art and also of manhandling popular art would be valuable to explore with the tools of neuroscience. In respect to the later, a recent study showed that typical Hollywood movies determines both gaze and broader brain response to a much larger degree than for example art movies or unedited clips of natural scenes.[33] Hence, the systematically different affordances of the movie styles yielded rather different patterns of neurological response – and

[31] Di Dio and Gallese [21].

[32] There are some studies showing shared neural correlates of judgments of beauty and moral goodness (Tsukiura and Cabeza [62]). This neuro-Aristotelean finding deserves further exploration, along with the correlation found between reward, motivation and beauty, love and OCD [2].

[33] Hasson et al. [39].

presumably experiences. Strong visual attractors seem to micro-manage brain involvement whereas more open aesthetic affordances offers room for personal involvement. Such empirical findings might inform "high-art/entertainment" discussions and possible responsibilities of funding and promoting junk-imagery in public spaces.[34]

Why a New Framework?

I have now discussed a series of dynamically interconnected inner and outer contextual aspects of aesthetic experience, which I see as pivotal for understanding how we become aesthetic beholders. Some outlined dynamics of aesthetic experience have likely gone unnoticed due to the kind of modular and non-contextual assumptions of many researchers in neuroaesthetics and cognitive neuroscience in general. A model of aesthetic appreciation and judgment presented by Helmut Leder and colleagues can illustrate this issue (Fig. 8.1).[35] They should be lauded firstly for taking on the daunting task of actually visualizing the process, and secondly for including a wealth of interesting observations and plausible aspects relevant to the overall aesthetic experience in their model.

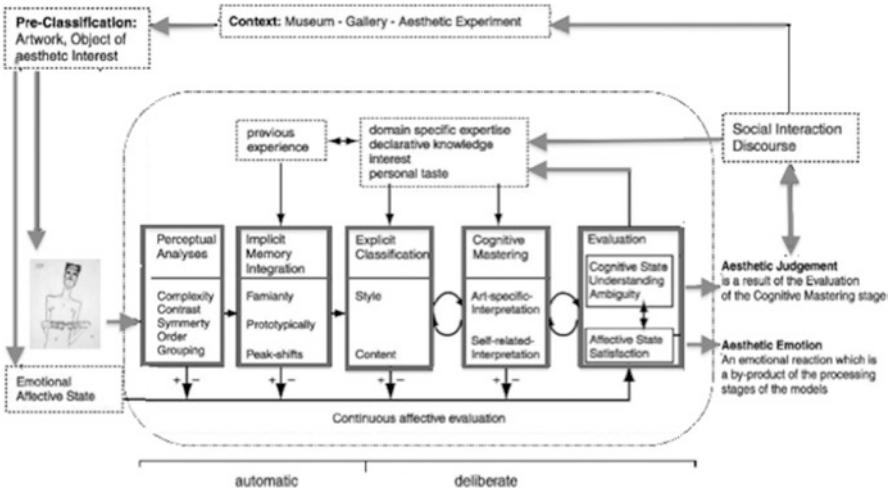

Fig. 8.1 Model of aesthetic experience (Leder et al. [47], based on model by Helmut Leder)

[34] This also challenges the idea of universality in Ramachandran's visual attractor based principles.

[35] Leder et al. [47]. Many warm thanks to Helmut Leder for his generosity in providing a figure structurally similar to the model of the original 2004 publication.

Their proposed model shows five separate stages of cognitive processing supporting aesthetic experience, from basic implicit low-level perceptual analysis (automatic) to more explicit and top-down problem solving and evaluative processes informed by prior knowledge (deliberate). Parallel emotional influences are shown to influence these stages and external contextual and social influences are shown to modulate the aesthetic input and output. I agree that these factors are important for aesthetic experience.

However, implicit in the model is an assumption of information processing, i.e. that the mind is a modular machinery, which goes from perceptual "inputs" (artwork + contextual factors) through a pre-set series of independent stages towards a set of "outputs" ("aesthetic judgment" & "aesthetic emotion"). This is clearly a simplified and non-literal model, but the question is whether the inherent cognitive structure is misleading.

The core question is whether the model's 'one-size fits all' structure of pre-set serial input-output stages limits the possibilities of dynamic interaction in concrete contexts, which I have suggested is crucial for understanding how we become beholders in the fist place. Such dynamics would indicate that the very idea of itemized 'inputs' and 'outputs' is inherently problematic. In terms of 'inputs', the distinction between the aesthetic and non-aesthetic hinges in this model on a pre-classification-box, which is influenced by context, but unrelated to the perceivers embodied engagement.

In terms of 'outputs' the proposal is here (1) an emotion and (2) an explicit and sharable judgment. But this itemization seems to obscure the notion that aesthetic experiences matter because they literally move and transform our embodied engagement and minds. The verb 'to behold' also means 'to keep' (German 'behalten'). The metaphor of beholding is thus not just about perceptual consideration but additionally involves a temporal holding – that somehow make it possible to "take in" what is perceived. If we literally let aesthetically considered objects in, then that informs the seeming vulnerability that is part of becoming a beholder. I proposed that appraisal in aesthetic experience might be tightly connected to vulnerability and function as a defense mechanism. However, these dynamics of change and embodied moves to explore, approach and avoid certain artworks are difficult to express in this sort of schematic.[36]

My proposal is that we need a new model structure – one that allows us to study the inner and outer contextual and embodied dynamics of becoming a beholder. Thus, in the apple eating-beholding example above, one might ask whether there are two different kinds of perceptual processes going on and how these dynamically relate to contextual factors and embodied responses and attitudes. If so then we need to include such dynamic influences in our models already at the level of perception of object features.

[36] On the Leder model change is indicated by arrows leading to the boxes in the top row of knowledge & prior experience, which then can inform other aesthetic experiences, but the perceptual process seem insulated from such interactions.

An Example: Joshua Bell & The Morning Commuters

The problem of isolating aesthetic stimuli in the lab can be elucidated by a not very scientific but nonetheless ingenious experiment by Gene Weingarten of the Washington Post. He enrolled famous violinist Joshua Bell, who normally plays at sold-out grand concerts, to play Bach incognito at a DC subway station in the morning rush hour. Bell played for 45 min for about 1,000 passing morning commuters. How did people react to these "pearls before breakfast" as Weingarten entitled the ensuing article? Leaving out the interesting details, the short answer is that most hardly reacted at all![37] Passer-bys must arguably have perceived some chunks of the music in that it was physically audible, and yet it seems many failed to listen in an aesthetically involved sense. Many might have sensed an appeal of the music but yet in their morning mindset failed to get engaged by the unknown street musician on their busy path. One might suggest that various passer-bys who listened were beholders for divergent reasons and to different degrees, and that their experiences – and the neural correlates thereof – differentiated accordingly.

The point of this example is that these sorts of dynamic differences cannot be studied by flashing 4s images to passive perceivers in scanners. In other words, by relying on pre-classifications and highly stereotyped perceptual scenarios many typical experimental paradigms of neuro-aesthetics ignore questions of when, how, under what circumstances and with what effect we become beholders. My claim is that without a more dynamic and temporal framework questions about aesthetic experiences such as why they matter, and why can we feel vulnerable, touched or violated by such – cannot be explored experimentally.

The Aesthetic Stance Hypothesis

The aesthetic stance can now be sketched as a theoretically framework.[38] The main purpose the framework and the "aesthetic stance" notion is to theorize the temporal and dynamic process of becoming – and ceasing to be – an aesthetic beholder.[39] Further, it is the ambition to do so in an empirically applicable way. Some of the

[37] Weingarten [67].

[38] Jesse Prinz has recently and independently developed an "aesthetic stance" notion [54], in relation to a discussion of when films count as art. His ideas has some similarities but are importantly differentiated from the present view in that the stance is thought of as a psychological state. He writes; "I use the phrase "aesthetic stance" to refer to a psychological state in which aesthetic principles are recruited in the evaluation of a work. Elsewhere I argue that aesthetic principles are basically triggers from aesthetic emotions: some features elicit these emotions in us." In contrast my use of the notion hinges on actual embodiment and is used to stress the contextual & temporal dynamics of aesthetic experiences.

[39] To my knowledge there are no other theories of how an aesthetic experiences begin/end, nor of the dynamics of how & when they are engaged/disengaged.

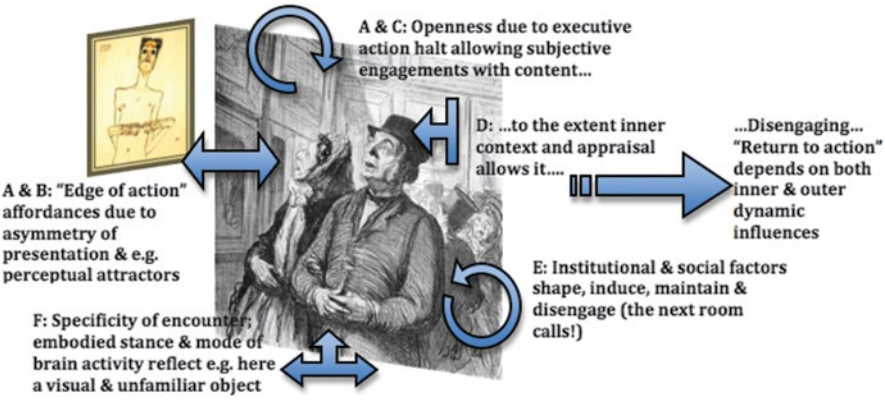

Fig. 8.2 Time slice of an 'aesthetic stance' equilibrium – Daumier meets Schiele (Artworks in Honoré Daumier, *Dimanche au Musée* and Egon Schiele, *Mime van Osen mit aneinandergelegten Fingerspitzen*)

core ideas of the aesthetic stance are firstly that being a beholder means that we temporarily let go of our regular practical and goal-directed stance. Secondly beholding is thought of as an embodied equilibrium and as a contextually sensitive process of varying characteristics, degree and intensity. Overall I hypothesize that aesthetic experiences are indeed a special subset of perceptual experiences, but distinguished through these relative dynamic relations rather than object features and attitudes alone. Based on the core aspects of the dynamics of the aesthetic stance covered in previous sections, we can put together a preliminary model and rough list of hypothesized influential elements and candidates for further empirical exploration.

Key aspects in the dynamics of the aesthetic stance (see Fig. 8.2):

A. A dynamic opposition between a practical and an aesthetic stance and accordingly opposed modes of brain function.
B. Aesthetic affordances
    1. "Edge of action" affordances invites a pause & executive action halt
    2. Salient stimuli properties & perceptual attractors (universal, personal and situated) as effective in grapping attention as well as maintaining it.
C. Vulnerability and openness of the perceiver – linked to lack of goal-directed attitude in regards to action planning.
D. The role of appraisal and taste as a gatekeeper and defense mechanism – needed as ballast to counter openness.
E. The role of "the other" – and its relation to appraisal, vulnerability & engagement.
F. The specificity of encounters; the aesthetic stance, incl. low-level physiological & emotional responses vary with context, experience & style of presentation.

To further understand this model I will try to clarify some points about the dynamics that it attempt to capture and how it compares to previous theoretical models and proposals.

Firstly, as mentioned when discussing the Leder model it is helpful to see this aesthetic hypothesis as a part of a larger dynamic conception of the mind, compatible with various versions of the embodied mind hypothesis.[40] The key dynamic features to be stressed here are the following:

> *External affordances* of the perceptual event as well as the embedded cultural framings can change the experiential process and the 'inner context' of the perceiver.
>
> The *inner* psychological & neurobiological context i.e. current moods, practical tasks and embodied rhythms, motions and emotions of the perceiver shape not only the perceptual experience but also the very process of the perceptual engagement.
>
> These multidimensional aspects dynamically *interact over time*, in a concrete bodily space. Meaning e.g. that the mere absence of an influence can enhance the influences of other causally relevant features.

Secondly, my take on 'disinterestedness' is not one of emotional detachment, but simply a letting go of a goal-directed attitude. It is a negative parameter that allows for a cascade of consequences. When we navigate and perceive the world through active action, there seems to be little room for aesthetic involvement. I propose that the aesthetic stance precisely represents a momentary denial of the practical attitude, a pause in the flow of hierarchical action planning, which is crucial in allowing aesthetic absorption and depth of experience. The "detachment" from action thus is not meant to preclude emotional involvement but rather promotes a receptiveness, where the pause of in action allows the experience to play with our emotions, sensorimotor resonance and potentially with our memories and imagination.[41]

Thirdly, the label "aesthetic stance" is purposively embodied and causally multidirectional – it is meant as a stance in the sense of being an active and physical bodily positioning and psychological attitude, and yet responding to and embedded in environment affordances. One way of getting at this Merleau-Pontian chiasm is to say purported 'top-down' and 'bottom-up' processes intersect already in the body and in the extended meeting of perceiver and context.

Fourthly, as I see aesthetic experiences as shaped contextually, and many emotional and embodied responses are hypothesized to take place involuntarily and below awareness, I accordingly oppose an exclusive focus on top-down voluntary control of the aesthetic attitude. This is important given e.g. Schopenhauer's idea

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[40] Without general consensus on a positive theory of the embodied – and dynamic, contextual and social – mind, this article should be seen as contributing to a new model rather than as simply agreeing with one of the formulations already out there. See e.g. Varela et al. [64], Johnson [42] or Di Paolo et al. [22].

[41] I have referred to findings of sensorimotor responses, and to how there might be 'more room' for the perceived event to 'fill' our sensorimotor circuits when no reaction is afforded. Such "space for involvement" might however also be found in relation to other brain circuits, e.g. supporting memory process, as discussed below.

of 'willful aesthetic detachment'[42] and similar current proposals. An interesting comparative example here is the approach of Gerald Cupchik. Cupchik has contributed abundant and incredibly historically informed theoretical and empirical work, and he even empirically explores the aesthetic attitude as hinging on "psychological distance". He suggests, like me, that there is an opposition between the aesthetic attitude and more pragmatic relations to perceived objects. However, his conception of how we assume the aesthetic attitude seems to follow the view of Schopenhauer, i.e. he sees it as a rather explicit and voluntary process seemingly on the side of 'top-down' cognitive influences. He thus contrasts the aesthetic attitude to a "strong and automatic"[43] inclination to assume a practical object oriented attitude, and thus seems to preclude that aesthetic involvement can be contextual or automatic.[44] As opposed to Cupchik my aesthetic stance hypothesis is not assuming a mental attitude, but applies to the temporally extended physiological processes by which aesthetic experiences are established and also dismantled again. Note, that this is not to say that voluntary mental attitudes do not play into the dynamics of aesthetic experience. Rather, I claim such explicit attitudes are insufficient to understanding the manifold of aesthetic experiences and their complex temporal and embodied evolution through 'inner' and 'outer', 'top-down' and 'bottom-up' influences.

Lastly, it cannot be stressed enough that under a process-oriented framework aesthetic experiences need not be 'all-or-none'. Rather, an analysis of the aspects contributing to specific experiences could be used to elucidate rather than eradicate borderline cases and their respective temporal and contextual structure.[45]

Future Directions of the Aesthetic Stance

Very well you might say, but how do we apply this to neuroscience? The effort to make these aspects explicit is as mentioned intended to facilitate the use of the framework in empirical studies, which then further can test, correct and develop the 'Aesthetic Stance 1.0'. An area that could serve as a first meeting ground for the aesthetic stance approach and neuroscience is the study of the brain's 'large-scale networks'. I shall conclude by looking at some of these findings of broad network interactions. First because they seem to support the general idea of dynamic and

[42] Schopenhauer, The World as Will and Representation.

[43] Cupchik [18], p. 84. See also 2002 article on psychological distance, which gives a great historical introduction.

[44] Cupchik picks a paradigm where "object recognition" is contrasted with a focus on color & style. These instructions yield a contrast of content exploration but ignore the larger embodied contextual dynamics and don't seem to get at the core differential of the aesthetic and the action-oriented.

[45] I am actually not opposed to the idea that all perceptual experiences are aesthetic to some minimal degree. However that broader story must be told elsewhere.

contextual brain functions, and more specifically my ideas about the implications and conditions for becoming a beholder, and how it contrasts with the goal-oriented action mode. But also because these findings help us pose new fascinating – and yet empirically tractable – questions.

The Dynamics of Large-Scale Brain Networks

Although Hans Berger found activity in the resting brain already in the 1920s, the discovery had little impact[46] though until about a decade ago due to findings by e.g. Marcus Raichle and colleagues.[47] They confirmed the high baseline activity during awake rest, and further that this far from random activity relies on an extensive and highly coordinated network of areas. The network – due to its correlation with rest – became known as the brains 'default mode network'.[48] Interestingly the network was thus defined negatively; as pertaining to the brain function when not engaged in any explicit task or action. It has since been found that this network of areas is involved in various memory and social tasks as well as in self-referential thought and reward evaluations over time.[49] Due to these later findings an overall 'mental time travel' function has been proposed, i.e. projection of oneself into non-current or imagined contexts.[50] This hypothesis fits well with the networks lone activity in the absence of a task or present 'affordances' to navigate.[51]

Two additional core large-scale networks have been discovered through analyzing the brains intrinsic connectivity.[52] The 'executive network' pertains to top-down control of action and cognitive tasks involving working memory, and its activity has been found to consistently impose a deactivation of the default network and vice versa.[53] The so-called 'salience network' is thought to play a critical role in the detection of salient and valuable stimuli, and has recently been

[46] Ideas of large-scale activity where advanced by several scientists already in the 1970s such Freeman, Edelman and Mountcastle for example, and for precursors in the 1990s see Bressler [7].

[47] Raichle et al. [55]. A default mode of brain function. Proc. Natl. Acad. Sci. U. S. A. 98, 676–682.

[48] See Buckner et al. [11] and Bressler and Menon [8] for an overview of the basic findings.

[49] See for example Hassabis and Maguire [40] and Bar [3].

[50] Buckner and Carroll [12].

[51] For intrinsic/extrinsic distinction see Gollard et al. [34]. Brincker [9] argues that fronto-parietal areas track the current affordance space and integrates this with prefrontal action planning. The default system by contrast might represent thoughts not under current practical navigational control – be it with actual limbs or e.g. mathematical moves in abstract space. There could thus be many scenarios where the default system contributes to ongoing perceptual tasks – namely when non-present affordances can inform the navigation. For tentative support this hypothetical idea see e.g. Gerlach [30].

[52] These are unlikely to be the only large-scale networks, but more complexity here is beyond my present scope.

[53] Raichle et al. [55] Buckner et al. [11] and Kelly et al. [45].

shown to play a crucial role in this opposing switching between the default and the executive networks as a response not only to external stimuli but also internal homeostatic needs.[54]

Brain Dynamics Meet Aesthetics

The seemingly mutual counter actions of the executive and the default network and the role of inner and outer salience for their dynamic switching are extremely noteworthy given the hypothesis of aesthetic beholding that I have proposed. It looks like preliminary neuroscientific support of the Kantian idea that a non-practical mode (switching off the executive system) is necessary for aesthetic involvement in the form of "free play of the imagination" (default system). How does this work? One might jump to the idea that aesthetically salient stimuli features (salience network) might switch off the executive network and switch on the imagination, aka the default network, and voila aesthetic experience! However, the great thing about biology is that findings always prove more complicated than theories. Recent studies in this young field of research suggest that, even though these networks are anatomically distinct and consistently show mutually exclusive spontaneous action during rest, some sub-areas – or 'nodes' – seem to be functionally connected during various complex real life tasks.[55]

A recent study by Nava Rubin's lab explored the relationship between the intensity of subjective experiences of visual artworks and regional brain modulation.[56] Interestingly, they found that the artworks, which were rated as moving subjects most intensely, irrespective of perceptual features,[57] activated several areas within the default system, whereas less emotionally intense experiences failed to produce any default system activity. Similar step-like activations for only intensely rated experiences were found in certain sub-cortical areas within the salience network. These findings are fascinating from the perspective of the dynamics sketched above, and invite new questions about appraisal and the role of the subjective relevance of artwork not only for intense emotional aesthetic experiences but also for salience and emotional engagement in low-level perception. I earlier contrasted a dynamic framework to more modular models of aesthetic experience. Here we see evidence that subjective variability interacts not only with the appraisal as an "output", but with which brain network gets involved in the aesthetic experience in the first place.

[54] Particularly the right fronto-insula region seems to be crucial in the switching process. See Seeley et al. [60], Sridharan et al. [61], Corbetta and Shulman [16] and Callejas et al. [13].

[55] Leech et al. [48], Christoff et al. [14] and Harrison et al. [38]. See also footnote 41.

[56] Vessel et al. [65].

[57] There was such a great variability in the ratings that each image that by some was given the highest rating was also by others given the lowest, which when one compares results by way of ratings then controls for the effect of the perceptual qualities of individual images used. See Vessel et al. [65].

Further, the study raises questions, e.g. about the 'not so intense' artwork experiences, which were found to not modulate the default system at all, and about the general role of appraisal in dynamically shaping the experience and its neural underpinnings.

Given the aesthetic stance we can understand these dynamic findings as enriching the basic framework and the new questions they raise seem to be empirically tractable. To test the core aesthetic stance hypothesis we need for example a better understanding of the interaction within and between large-scale networks in response to different viewing contexts, prior knowledge etc. Further, it is crucial to understand the role not simply of the executive system as a whole, but whether the top-down control of action – i.e. the executive influence specifically on the parietal areas of perceptual and spatial navigation – is inhibited during aesthetic experiences. It is compatible with my hypothesis that parts of the 'executive system' play a role in appraisal and top-down attention modulation. Findings in this area could also help us understand the precarious relation between intimacy, vulnerability and the idea of appraisal as a possible gatekeeper. Similarly, one could ask whether beauty – as often assumed – is tied to the hedonic *outcome* of aesthetic appreciation, or as I have speculated above also could play a 'salience network' role in *engaging* and *maintaining* an aesthetic stance along with other emotional "perceptual attractors".[58] Another hypothesis to be explored empirically is whether the affordance structure of the environment plays a role in inhibiting or promoting a goal-directed attitude and thus the likelihood of aesthetic involvement. Overall, the frame of large-scale networks along with the aesthetic stance hypothesis could help us reinterpret many past neuroaesthetic findings that have been produced under more modular paradigms.[59]

In conclusion, I have outlined an "aesthetic stance" model, which is a dynamic and embodied framework for an empirically minded study of aesthetics. I have pointed to various empirical and phenomenological observations that support each of its aspects. However, I have also purposively opened up more cans of worms than I can close again, and the aim of this piece is to call for interdisciplinary engagement. I pointed to theoretical limitations in current neuroaesthetics, but also to tools for overcoming these. More specifically I call for more attention to dynamic, contextual, social and temporal aspects of both aesthetics and brain functioning.

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[58] See here the contrast to the discussed ideas of Zeki, Ramachandran & Leder.

[59] As long as one studies the fine print of the method sections and uncovers the implicit assumptions of the paradigms used it is a true that the data does not lie.

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Part IV
Art Beyond Art Theory and the Cartesian Mind-Body Dichotomy

Chapter 9
The Last 'Touch' Turns the Artist into a User: The Body, the Mind and the Social Aspect of Art

Mariselda Tessarolo

Abstract This chapter takes into account the "material" aspect of artistic work not following an historical and philosophical path, but rather starting from the idea of the mind as part of the body. We intend to analyze, theoretically and empirically, the human capacity to create shapes, sounds and movements that society defines as 'artistic forms': this ability is related to the handedness and senses. From a sociological point of view culture comes from the mental structure of those who create and those who view artistic work.

Keywords Piaget • Bodymental • Sociology and aesthetics • Embodied aesthetics • Embodied creativity

Introduction

The present work addresses the 'material' aspect of the artistic craft: a work is made with the body (hands) starting from the mind, which is a permanent part of the body. The mind is indeed part of corporeity even if it is experienced in different ways compared to the spatiality of the body, which, from birth, be it alive or dead, will always occupy a space [28].

Sometimes Plato, sometimes Descartes are blamed for the separation of mind and body.[1] "The empirical recognition of interaction and interdependence between the two components of our being may open new perspectives of knowledge on what is the most central part of human speculative investigation, answering the question: Who are we?" ([17], 66).

[1] Descartes thought that the mind and the body were joined in a single point, in the pineal gland in the brain.

M. Tessarolo (✉)
Department of Psychology, University of Padova, Padova, Italy
e-mail: mariselda.tessarolo@unipd.it

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Man can create forms, sounds and movements that society calls 'artistic forms'. This ability is linked to manual skills and to the senses (touch, hearing, sight). Man has poietic ability (producing) and esthesic ability (enjoying). Both abilities lead to and concentrate on the esthesic ability (enjoying) as soon as the work is completed. This happens the moment the artist has finished his/her work, when he/she has put the final brushstrokes to a painting, written the last note or the last word. The senses have been defined as a 'narrow door' of knowledge because our feelings are influenced by the physical means available to us and by the conditions in which they operate ([17], 92).

The awareness of the union between the mind and the body dates back a long way as Kant stated that "the hand is the window on to the mind" and Einstein used to say "my pencil is cleverer than I". The thread that leads to the convergence of body and mind comes from the "scheme". Starting from Kant, one can say that the faculty of forming concepts is provided by the mind, which develops discourse ability, while intuition gives representation to the sensible that can be achieved only with a single glance. Kant maintains that schemes are the point of convergence between the image and the first analysis conducted on the object perceived. They are the "monogram of pure imagination" as they are the first pre-conceptual selection and thus an anticipation of meaning: this is done by the artist and also by the user. The latter 'must' retrace the pathway followed by the artist not in an individual but in a relational way, in which, however, the relationship is deferred. Perceptions are important but partly depend on the action. Indeed, Piaget stated that "the initial exchange tool is not perception, but action in its great plasticity" ([20], 12).

Broadly speaking, each perception gives the perceived elements meanings related to the action. This is why Piaget starts from actions and distinguishes them into motor-sensory actions, prior to any language or representative conceptualization, and in actions completed by new features, which leads to the issue of the awareness of the outcomes, in other words of its translation in terms of conceptual thinking [20]. Through perception, therefore, embodiment is already established.

The act of structuring the vital space, which is shared by the social actors, establishes forms of experience. The first distinction between these forms occurs between experiences lived 'within' (as *interna*) and experiences lived 'without' (as *externa*) the surrounding environment. By analogy, *interna* can also be attributed to other actors. Within the creator 'something' begins to form that embodies beauty, harmony that holds true for everyone when this 'something' becomes *externa*. Such transformation shapes the culture by which each individual subjectively interprets artistic signs but is aware that their appreciation is shared by many others. If intersubjectivity is considered, a remarkable difference can be found between the two categories of experience. As regards *externa*, there is convergence between the actors' experiences, while in the case of *interna* a relationship by analogy continues to exist due to the parallelism of some experiences or to complementariness, as happens in interactions [5]. Ferry stated that "Subjective and objective are opposed to one another as, respectively, an association of representations valid only for me and an association of representations

valid for everyone". Intersubjectivity, therefore, is deeply embedded in the heart itself of objectivity ([11], 115).

An object "in itself" can never be experienced; its properties will be expressed only through a "bodymental"[2] interaction with it. In other words, one starts from the fact that each feature of the object derives from a subjectively experienced interaction. On the other hand, given that, thanks to the common genetic heritage and the common evolutional history, every human being is equipped with more or less the same bodymental characteristics (senses, memory, associative ability…), the experienced properties have actually an intersubjective nature.

This does not mean that everything occurs according to pre-arranged schemes, but rather according to recognized schemes. What the body does is governed by the mind as a whole: the body and the mind are aspects of a single organic process. And meaning attribution, thought and language emerge from the aesthetic dimensions of this embodied activity that Johnson [14] calls "hermeneutics of corporeity".

Piaget underlines that a child's mental development is continuously in parallel with the affective life and with the intellectual life. "There are (…) no purely intellectual actions and neither purely affective acts, but both in behaviors about objects and in behaviors about people the two elements always play a part because one presupposes the other" ([20], 41–42). Further supporting stimuli come from Popper [21], who identifies World 3 in which the scholar, who defines himself a Cartesian dualist that overtakes the master by becoming a pluralist, includes the products of the human mind. Such products are all things that belong both to World 1 and World 3. Some products of the mind are not actual physical things. The scholar gives the example of the theatre: a theatrical performance is not the same as a written or printed book, which is a physical thing, and a performed play is not a physical thing, even if it may be defined as a very complex sequence of physical events.[3]

Likewise, *Hamlet* is in itself different at each performance. While an original painting is always a particular physical thing, Hamlet clearly is not. Popper's thesis maintains that we cannot understand World 2, which is the world of our mental states, without understanding that its main function is to produce objects of World 3 and to be subjected to the actions of the objects of World 2. To draw near to a solution of the body-mind issue we must consider World 3. In fact, the explanation of the relation between the mind and the body came from the problem of the relation between World 1 and World 2, and, if the function of World 2 to intermediate between Worlds 1 and 3 is an important element in this relationship, then the

[2] In Italian *corpomentale* is a neologism created by G. O. Longo [16] which expresses well the union between the body and the mind.

[3] It must also be remembered that no single performance of *Hamlet* can be said to be identical to Shakespeare's *Hamlet* itself. Neither is Shakespeare's work the class or set of all its performances, in a way similar to that in which a building or a sculpture may be said to be represented by one or several photographs or prints of varying quality. Although it can be said that its reproductions belong both to the World 1 of physical things and to the World 3 of the products of the mind, the play *Hamlet* itself belongs only to World 3. A symphony is a similar case.

body-mind issue is bound to remain incomplete until we extend it to cover the interrelations among the three worlds ([21], 18).[4]

An example of embodiment and elaboration between the mind and the body is given by Popper [21] when he wonders whether *Hamlet* as a complete work already existed as such in Shakespeare's mind. "What is Hamlet as a whole work? It is certainly the work in Shakespeare's mind. Each part surely existed at a certain time, but it is more than doubtful that Shakespeare might have had the whole work in his mind (…). I don't think Shakespeare could possess *Hamlet* without actually writing it down. We do not happen to have the whole work in our mind and then write it down. It is always a creative process, similar to the creative process of a painter. A painter has a cloth before himself and may place a blob of color on it, then he may step back to take a look at the blob of paint and possibly remove it."[5]

The creative act is a constant interaction between World 2 and World 3. Most writers continually modify what they have written. When after many changes the draft is ready, it is something different from what the author had originally in mind. Popper thinks it is unlikely that "*Hamlet* should ever have been in Shakespeare's mind before it was created, before it was actually written. It was very likely a process by which advancements in writing the work suggested to Shakespeare new ideas he had not had before. Very likely there was an interaction between that process and the author." ([21], 33–34).

Doing

The word 'manipulation', a term recalling an action made with one's hands, is used in a number of different disciplines and is metaphorically greatly explicative. Argenton ([1], 56) uses as introductory line of the paragraph on manipulation the following sentence by Leonardo da Vinci: "And in reality what exists in essence, frequency and imagination in the universe he (the artist) has it first in his mind and then in his hands".

From a sociological perspective, culture is born from the mental structure of those who create it and of those who use it, and this occurs in two ways:

– The artist's doing and certainty of thoroughness – that is of having used all his/her mastery – makes the work socially shareable. Users, in fact, have the same scheme-creative mental structure as the artist and, even if they do not have any poietic ability, they have the esthesic ability, which is just as powerful socially because it produces culture and is produced by it.

[4] Goodman [12] maintains that some works are autographic and others allographic. The former, e.g., the plastic arts, do not need an intermediary. Other arts, e.g., music, but drama too, belong to the latter type as they have to be interpreted by an intermediary to go through the musical writing (reading printed music scores and playing an instrument).

[5] Rarely is a work immediately considered perfect. See, among others, Mozart and Rossini as regards music, the changes Manzoni made to his novel "The Betrothed" as regards literature.

– When the creator, the author, decides[6] that what he is doing is the last brushstroke, the last note, the last movement, he does nothing but deciding that the work is completed and then stands in front of it like any other user. The artist changes his role and what he has done does not belong to him any longer, so much so that usually he cannot change it anymore, but must produce another work.

Very useful to study the mind and the body are both Sennett's ideas, put forward in the book "The Craftsman", and the questions Popper asks about Shakespeare. Nowadays it is fashionable for the social sciences to speak of embodied knowledge, but the formula "thinking like a craftsman" does not only refer to a thought modality, it also has a very precise social aspect [22]. The tactile, the relational, the incomplete are all part of the physical experience lived with the manual act, for instance when drawing. Drawing symbolizes a wider range of experiences; likewise, writing includes revision and re-writing, or playing an instrument includes exploring the complex quality of a chord.

"Doing is thinking" is Sennett's [22] guideline. *Homo faber* and *animal laborans* are two figures of being "man at work", two reflections of the human condition. *Animal laborans* is the man condemned to routine; for him the world is an aim in itself. The opposite is true for *homo faber*, who has another type of work as he is a craftsman and a creator. The former answers the question "How?"; the latter asks "Why?". The former may become a guide for the latter ([22], 15). The term *mastery* indicates a lively human impulse, the wish to do a job well. *Mastery* improves a person's overall way of being. Every good craftsman establishes a dialog between real practices and the thought, and such a dialog concretizes in the acquisition of support that triggers a rhythmic movement between the identification and the solution of problems ([22], 18–19). A writer will focus obsessively on each comma to give the right rhythm; a carpenter will rub down two pieces of wood until they hold together without needing any screws. If the functionality criterion is followed, the work will be handed in before it is finished. Deep down every craftsman is a perfectionist for whom any imperfection is a failure: for a practical person obsession with perfection is a sure recipe for failure ([22], 52).

The silent components of knowledge bring with them the risk of not setting high quality goals for oneself. It is only by activating *awareness* that the worker is spurred to do better: it has been calculated that about 10,000 h of practice are needed to train a master carpenter or a professional musician. "At the highest levels, technique is no longer a mechanical activity: only when they have learned their job well can people thoroughly understand through feeling and thinking what they are doing" ([22], 28).

"Today, science has shown that the sense organs do not have different nervous pathways to get to the brain, but that there is a network of eye-brain-hand neural connections that enables sense of touch, pressure and eyesight to collaborate together". The sense of touch creates problems in defining the hand as "intelligent". "Localized touch" is mentioned and calluses typical of individuals that use their hands in their

[6] The decision, however, is not the consequence of a whim, but comes from the perception that what he has done is complete (the union of mind and body).

work represent a particular case of localized tactility. The thickening of the skin should make touch insensitive, but the opposite is true: the callus makes the probing action less hesitant and if on the one side it sensitizes the hand as concerns small spaces, on the other it stimulates sensitivity on the fingertips ([22], 150).

Researchers at Konstanz University have compared the representation of the hand in the somatosensory cortex of professional violinists with that of individuals with no expertise in playing the violin. "The cortical representation of the fingers of the left hand, which is the hand that touches the strings of the instrument and requires remarkable ability obtained in long years of training, turned out to be much larger than that of controls. However, the representation of the fingers of the right hand, which confines itself to moving the bow, showed no differences between the two groups" ([17], 66). Marazzi observes that plasticity knows no rest and that we should consider the body and the mind as an integrated ever working laboratory which changes also at neuronal level. Thus, changes embodied in the mind affect culture and vice versa.

Relationship with Others

Simmel [24] considers relationship understood as Wechselwirkung (interaction and reciprocity). "The world belongs to us through the body, and we belong to the world, we are in this world, through the body. The sense of this relationship of reciprocal inherence has always being shaped and re-shaped according to a cultural matrix that we acquire the moment we learn to see, communicate, talk, live our body as a relationship with others and with the world humanized by the culture in which we were born. That does not stop the sensitive depth of the world lived through our body inherence, which is the only one of our experienced certainties, to be the matter that will be conformed, shaped, stylized, modelled by culture or denied by barbarianism." ([13], 90).

The artistic phenomenon has a visible and an invisible side which relate to each other; one does not exist if not by virtue of the other. Simmel gives great importance to seeing, his thought is rooted in "seeing" and, especially in building up an image by choosing a viewpoint ([23], 18), art can derive only from "artistic dynamics". It does not begin with the finished artistic product ([24], 77). When speaking of creativity in architecture, Sennett, too, observes that the diverse cultures allow to bear in mind the materially elaborated cultural model. Susanne Langer [15] defines the symbolic form of architecture as the "ethnic sphere". This expression highlights the 'ethnic', 'local' diversity of architecture, diversity that proceeds from the mental elaboration of prototypical models. In such a construction process a constant relationship can be seen between assimilation and adjustment. The subject's activity is tied only to assimilation and the image depends on adjustment; the connection with imitation would merely serve to qualify it as a copy. Imitation occurs when

adjustment does not follow assimilation and produces the image. Piaget [19] maintains that assimilation schemes enable to embody the objects of one's activity, even if no assimilation schemes exist because each scheme is the result of assimilation. Adjustment therefore remains subjective. The enjoyment of an object of art does itself produce adjustment because it shifts attention onto aspects of reality on which only the creative eye is able to dwell, presenting afresh the same reality that is under everybody's eyes ([27], 60).

The artist's imagination does not arbitrarily invent the shape of things, but rather makes them visible and recognizable through a process of objectification. Indeed, the artistic eye is not a passive eye that receives and records impressions of things, but an eye that only through its constructive activity can "construe" beauty ([8], 263). Embodiment is not a problem for Cassirer, who believes that aesthetic perception, compared to sensory perception, covers a wide range of aspects. Art is enjoyment of forms and the pleasure that these can provide is special because in order to feel beauty such forms must be produced. Within artistic creativity, pleasure is not simply an objective fact, but an actual function which, from forms, colors and sounds, can draw the dynamic life of the form. In these terms, the enjoyment provided by art can be objectified and objectification is always a constructive process ([8], 275–76).

On the other hand, if the ideas of reason, albeit undetermined, were not shared by all humankind, the beautiful object would not produce a common meaning and neither a case of divergence by rekindling such ideas. In the latter case, in order to discuss, there must also be "hope for agreement" ([11], 118).

Works that astonish us tend to 'bewilder' us, to test our cognitive processes: they are works which function by "activating the perceptual processes, stimulating the visual system by taking it to the extremes" ([30], 133). We may wonder what we can see in the contemporary art (non-representative, non-objective, non-figurative) that has developed without breaking the traditional laws of composition and of the figure-background ratio.

Creativity is also in distortions because distortion includes abstraction ([2], 63). Projective distortions not only allow to discover the prototype inherent in them, but they actively require it. The distortion factors are not only perceived negatively as impurity that interacts with the real form of the invariant object. Going well beyond the stimuli transitorily and directly received by the eyes, the mind operates with the very wide range of available images through memory and organizes the experience of a lifetime within a system of visual concepts. Arnheim ([2], 345) sees art as a fundamental means of orientation stemmed from man's need to understand himself and the world in which he lives.

For Dewey [9] the "continuity principle" becomes a thread to show that individuals first give a sense to their own bodies, then to the environment and to movement. All that contributes to build abstract conceptualization (everything is qualitative, pre-linguistic and not conscious). The body interprets the

responses that are produced by the body itself, also the emotional ones.[7] Human thought is a continuous thought-sensation of the process which is always linked to the control of our body and of its states.

We have so far observed how the artist acts through schemes and produces artifacts that become detached from him/her and stand before him/her as they do before all other users. The mere "doing" of the hand produces a work: the hand realizes what is in the mind of the "producer", who, in doing, creates also mentally, continually honing his/her "work", his/her artifact. The hand has an intelligence that derives from the producer's intention of doing something.

Body vs. Creation-Use

Also in solitary arts, the catharsis that occurs in the user mirrors that which goes to the author from creation. The work emphasizes consideration of the work itself, the externalizations which it is the outcome of doing (and not of sentiment) [10].

Also considering only the experience of the user, the author will have to be evoked, but it will be the author revealed by the work not the author who has historically done the work (and the creative act is not necessarily the same whether it is done by the artist or whether the user imagines it through the work). One must be a bit of a poet to appreciate poetry and a bit of a painter to understand painting, not in the way of the real poet or the real painter. Creating and appreciating the creation itself are two very different behaviors, which may rarely be found in the same individual. Penetrating into the innermost part of an artist through a work does not mean being an artist, but sharing a similar pathway. Is not the aesthetic experience through which we think we are discovering art the act of art within us and almost the effect of an inspiration parallel to the artist's inspiration? [10].

"The parallelism of the phenomena of the soul and of the body would then be the necessary manifestation of a shared root (…). The unitary and real processes (…) do not begin nor end in physical and psychic reality, but in that third reality of which we have no immediate consciousness. They are only two different elements or parts of this real process, which manifest themselves as either a physical or psychic act" ([7], 130). About the soul nothing can be said, but about the spirit Kant specifies that it has three fundamental faculties: sensitivity, imagination and intellect. Sensitivity allows to receive "representations" (called perceptions when they are conscious, intuitions when objective, sensations when subjective) directly from the thing itself through the filter of space and time. Every art has its own way of doing; as regards music Blacking [4] talks of primacy of listening. Without the biological processes

[7] Objects have a length in the sense that a certain class of measurement can be applied to any object and the result of the operation is a number. Measuring occurs through the body up to quantum mathematics [6]. Cassirer settles the debate between art and science with simple words: between art and science there is only a difference of degree.

of auditory perception and without the cultural consent of at least a group of individuals about what is being listened to, no music and no musical communication can exist. In a society in which music is not written, conscious and careful listening is an index of musical abilities just as much as the performance itself because it is the only means to ensure continuity to musical tradition. Music is a product of the behavior of human groups, regardless of their degree of organization: it is a humanly organized sound which belongs to a pattern which is also culturally shaped. Even if different societies tend to have different ideas about what music is, all definitions of it are founded on some sort of consensus on the principles according to which sounds should be organized. Such consensus could not exist if there were no basic shared experiences and if several people were not able to recognize structures in the sounds they listen to. Music is a cultural tradition that can be shared and passed on, but which cannot exist unless at least some individuals have, or have developed, the ability of structural listening. Because it is different from mere noise production, musical performance cannot be conceived without the perception of some order among sounds.

In the musical domain we talk of the primacy of listening as the continuity of music depends as much on the listeners' demands as it does on the supply of performers. Blacking ([4], 33) observes that music cannot exist without the perception of order among sounds. This does not mean that any sort of musical theory must precede composition and performance, but the author suggests that whether perception of sonic order is innate or acquired or both, it must be in the mind before it emerges as music. This scholar too maintains that there must be embodiment of music. He points out that also among the Nsenga (Zambia) the analysis of the pieces played showed the existence of relations between the pattern of thumb movements of the two hands, the rhythmic schemes followed when plucking the "keys" and the scheme for the "keyboard" ([4], 34).

At some level of analysis all musical behavior is structured on biological, psychological, sociological, or purely musical processes. The rhythm is emotionally charged, as is the sequence of sounds organized in the tension or relaxation of harmony or melody. However, reactions to music cannot be totally explained without making reference to the culture of which the notes are signs and symbols. The same piece may arouse the same emotions in different people, although for different reasons.

In order to create new *Venda* music one must be a *Venda*, that is to say must have been part of the social and cultural life from early childhood. Musical creativity can be described as a social, musical and cognitive process. Social and cultural factors are one of the rules that can explain the sonic structures. "Music is part of the social situation. (…) What is most important in music cannot be learned just as one learns other cultural practices; it is something that is in the body and waits to be expressed and developed" ([4], 112).

To become contents, the user's experiences must be communicable and thus intersubjective. The intersubjectivity of experiences lived as *externa* can be obtained through convergence between individuals, while experiences lived as *interna* reach intersubjectivity by parallelism. This is because external experiences

come from actions while experiences can be internal only if a number of individuals, endowed with a similar personality, find it possible to define a situation in a certain way ([5], 64).

The importance of expectancy and realization in society is underlined by the trend of expectancies to converge and form sets of norms that make up genres, and by the trend of realizations to centrifugally disperse into the various social situations. In society and in knowledge in general, typification requires less effort than innovation and leads to the core of a situation, to a balance which is maintained by penalizing the innovations implemented by the actors. However, in spite of typification, society is in continuous evolution, which needs instability of situation and the ensuing change of actors and objectives, orientation of actors toward the objectives and their reciprocal orientation.

"Doing" is inherent in creation; it may become an important element in studying art. In production, doing and meaning coincide. Mauss retrieved the importance of the body that for many years had remained at the margin of both sociological and anthropological studies. The French scholar formulated the category 'techniques of the body' with which he organized a new area of investigation starting from the presupposition that "men in the most diverse societies use their body. Indeed, the body is man's first and most natural instrument". Mauss believes that man is a *habilis* animal; the abilities man has allow him to adapt to the environment and guarantee him his own survival. First, man uses his body as an instrument, subsequently he builds instruments [18]. Cultural traditions, then, give a more definite shape to body techniques. Likewise, cultural anthropology has addressed the issue of revising the body-mind connections and, consequently, the body-culture ones. A radical change has thus occurred in conceiving the ways in which mankind was formed.

Art aims at giving meaning, at changing reality, at transforming objects and facts into social meanings. "It is a typically human and typically social ability to give meaning to the world through cognitive praxis and through work." ([26], 20). Making sense of the world is so strong that nobody is "ignorant", nobody is "*tabula rasa*" because the ignorant person's reading is already somehow wise, given that there are no such things as naïve spectators because they do not confine themselves to enjoying a work of art: *unbeknown to them* they are evaluating and interpreting it. Unbeknown to them means they are not aware of their own learning.

Even if art does not tend toward the explanation of reality, it cannot however neglect attempting to know it, because only knowledge enables artists to master the means that allow them to exploit their own expressive abilities.

Rules change whereas works gaze mutely at how glances change. Looking at art cannot be innocent because we have learned to look, and thus to see, by losing our innocence while learning [29].

With Cassirer awareness that the formal order of cognitive experience becomes rooted in formative functions rests on the complex function of shaping the experience itself. "The concept of culture cannot be detached from forms and directions that are fundamental to spiritual production: being here can be captured only in

doing" ([8], 21). The concept of culture cannot refer only to knowledge, but to our "doing" as well. The diverse forms typical of human industriousness reveal themselves as fundamental directions by which reality is to us the world of "pure spiritual expression" as the universe of culture.

Art is expressive, but it cannot be such without creating forms, and the formative process can only be realized with the matter supplied by the senses. Croce said that the only important thing is the artist's intuition and not its embodiment in a given matter (matter would only have a technical, not aesthetic importance). Intuition is placed halfway between the sensitive and the intelligible. Cassirer maintains that intuition exploits corporeity, through which knowledge of the world is possible. If language is an abstraction, and thus the abbreviation of reality, art is then its intensification, which can be realized through a process of concretization. In the realm of art everything is changeable. "What Heraclitus says - the sun is new each day - is true for the artist's sun although not for the scientist's sun" ([8], 253).

Conclusion

Perception is possible not as a process that can be traced back to individual psychology or situated inside a Cartesian mind isolated from the world in which it lives, but as an intrinsically social phenomenon connected with action in the world. The organization of scientific practices presents not only conversational components, but also processes that are such through discourse (discussion, law, arbitrate). Agreement is not something that the brain knows, but something done in collaboration with others. It is not a static state of consciousness, but an interactive process that stretches to include the different actors of a distributed action field.

In teaching painting methods the issue discussed by Dewey develops along two directions, the first stemming from his statement that it is impossible to banish all external influences, the second from his observation on the greater originality of the youngest pupils. It cannot be denied that an individual's mental development is encouraged in every branch of human action by the experience built up and selected by others in that direction (and not the opposite). Like Sennett, also Dewey gives an example drawn from craftsmanship: a carpenter trains for the profession along with other persons that have experience and skills, contributing with the simplest parts of real jobs, learning to observe methods and seeing which results are achieved. If an apprentice has a trainer that teaches him only one type of house and gets him to accept that it is the only possible type of house worth building (in other words, as the real type of house, the exemplar of all houses), the result will be a limitation of his personal abilities, of his technical skills, his abilities of observation, imagination and judgment. Such limitation will affect emotions

(continued)

too, as his evaluations have been warped to adapt to that single model ([9], 20).[8] Individuals become aware of what they want to do and of what they are doing only when their work is complete. There is a connection between originality and independence of thinking and the executive process, which is subject to changes carried out on the initial "suggestion", on the starting idea. Useful "suggestions", really "seminal and original, are themselves the outcome of an experience matured in doing what has been pursued. Thanks to the execution process, the mind is able to give meaningful suggestions. Acquired experience offers greater odds of being valid and articulate." ([9], 26–27).

"(…) the function of art (…) is to get the user to learn something he/she didn't know before." ([15], 35). "The primary illusion of virtual space is born with the first stroke of the brush or the first pencil trait that focuses attention wholly on the pictorial plane and counteracts the actual limits of vision. (…). It is enough to establish a line in virtual space and at once we are in the sphere of symbolic forms". "The true foundation of musical enjoyment is the same that underlies production: recognizing forms in virtual time (…)" ([15], 103). Listening is the primary musical activity. Musicians (partially) listen to their idea before playing or singing; and they are the first to listen to their own work. The only aid a musician needs is a world that listens.

Each time man follows this pathway, he enters into a new dimension of reality. He stops living in an exclusively biological dimension and enters into a symbolic universe. Man establishes a wholly primary relationship with the world around him: he gives it sense and a structure, and makes its contents meaningful.

"(…) once the complexity of the form has been minimized, the association with the things of reality becomes minimal". In addition, it must be underlined that "non-mimetic art is not mere form; even the simplest of lines expresses a visible meaning (…). It does not offer intellectual abstractions, because there is nothing more concrete than form and color (…)" [3].

The human eye, which evolved in the service of biological survival, turned very early on toward enjoying artificial images. Art is the "chance product of the evolution of the eye and of the brain" [25]. Drawings have been produced to depict the visual world since the dawn of mankind's history and the roots of pictorial perception lie in environmental perception ([30], 134).

[8] This observation is critical of a tradition seen as a foreclosure against creativity. "Tradition does not expand, nor does it free; it is restrictive and tends to assert. He is the master and the pupils are disciples rather than apprentices. Tradition is no longer tradition, but a fixed and absolute convention" ([9], 23).

(continued)

Artists look when they have done their work and see that it is "very good". Such "seeing" that it has been done and it is "very good" is a primordial act and can be found also in science not only in art.[9]

It is naïve to think that concepts, theories, and beliefs on the body-soul dichotomy, on the mind, or on the spirit actually mirror reality. Inevitably, they are only a particular way to organize the human experience. Arnheim observes that "man can trust the senses because they supply the perceptual equivalent of all theoretical notions, given that all such notions derive first and foremost from the sensory experience: human thinking cannot go beyond the patterns put forward by the human senses" ([2], 274). Aesthetic perception embraces a much wider range of aspects than sensory perception. Aesthetic universality signifies that all that is recognized as beautiful is so not only for a single individual, but for all the individuals who make a judgment ([8], 255). The artist's silence accompanies 'doing', sculpting, writing a novel or composing music. The whole being and the whole mind are involved in creating. The silence that seems to wrap a work of art is at once subjective and social because individual comprehension already has in itself the characteristics of sociality.

If Johnson's [14] notion of finding the sense that grows within us is followed, a constant connection can be found between the mind and the body, an 'organized' something that finds its structure inside the creativity process itself. Simmel maintains that the glance that catches the spiritual tuning (Stimmung)[10] is a crucial moment, the moment that translates the fragmentariness of elements of a painting into a feeling of unity: how is this possible? It is possible because when the painter sees his/her finished work, he/she no longer sees it as the sum of disparate elements but in its entirety, just like the beholder.

Man, the individual, the person, the subject finds meanings by shifting them from within to without (*interna* vs. *externa*), but not by wrenching them from the body. The mind finds meaning by acting within and with the structures existing in the body and takes them out of the body where a cultural 'adjustment' can occur that goes to form the different cultures. The creation of culture shows that man is creative in his mind and with his mind, which is connected to the body and not without or removed from it.

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[9] In the Genesis at the end of creation, the sentence "God saw all that he had made, and, behold, it was very good" is repeated over and over.

[10] *Stimmung* is very hard to translate because of its many nuances: spiritual tuning, mood, feeling, atmosphere, according to context.

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Chapter 10
Art That Moves: Exploring the Embodied Basis of Art Representation, Production, and Evaluation

Kendall J. Eskine and Aaron Kozbelt

Abstract Aesthetics plays a central role in human life. Given its ubiquity across cultures, there is no shortage of theories about its origin, function, underlying mechanisms, purpose, and so on. While we applaud the diversity of these approaches and their commitment to shedding light on this mysterious and abstract conceptual domain, many of them are unabashedly top-down, centering on the role of higher-order, reason-based assumptions about how the mind works. In contrast to this view, over the past decade, findings across the cognitive sciences have provided considerable support for the thesis that cognition is fundamentally grounded in sensorimotor and perceptual states. The now popular view of embodied cognition – a species of grounded cognition – has energized many of the creative insights that have helped breathe life into traditionally intractable cognitive problems (e.g., symbol grounding). However, insightful critics like Mahon and Caramazza (J Physiol 102:59–70, 2008) and Dove (Cognition 110:412–431, 2009) have argued that grounded accounts of cognition fail to adequately explain the representation and processing of abstract concepts like *AESTHETICS*, which give no unified perceptual experiences. In this chapter, we argue that aesthetics (like other abstract conceptual representations) can be accommodated by an embodied theory that uses two classes of perceptual information (sensorimotor and affective) to explain art representation, production, and evaluation.

Keywords Sensorimotor and perceptual states • Aesthetics • Sensorimotor information • Perceptual information • Art representation

K.J. Eskine (✉)
Department of Psychology, Loyola University New Orleans, New Orleans, LA, USA
e-mail: kjeskine@loyno.edu

A. Kozbelt
Department of Psychology, Brooklyn College and the Graduate Center
of the City University of New York, New York, NY, USA

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Traditional Approaches to Aesthetics

Aesthetics as a freestanding domain of inquiry has been pursued by philosophers, critics, and creators themselves for at least 2,000 years. The term "aesthetics," characterized as sensory cognition, was coined by Baumgarten [7]. Since then, philosophical theories of aesthetics have gained in specificity and scope, continually evolving in response to novel forms and styles of art and focusing on questions like the nature of art, aesthetic properties, and aesthetic experience [54]. While this tradition continues to the present, the extent to which such speculation has succeeded in illuminating aesthetic issues is debatable. A pessimistic perspective would relegate *any* armchair philosophizing about aesthetics to mere opinionating, if it is not grounded or constrained by hard data [47].

An alternative is to approach aesthetics as amenable to empirical inquiry and understandable in doggedly scientific terms [10, 74]. Indeed, empirical aesthetics is the second-oldest branch of experimental psychology [28], and the methods and metrics available to contemporary aesthetics researchers span the full gamut of psychological investigation. Through careful measurement and data analysis, falsifiable hypotheses can be tested, and the results can be integrated into comprehensive theories, yielding strong conclusions and fertile predictions that go well beyond purely philosophical arguments.

Despite such advances, it is probably fair to claim that empirical aesthetics research is too often limited by a focus on methodology, rather than addressing the fundamental basis of the nature of art. That is, issues like the nature of the concepts and mental representations that undergird artistic production, appreciation, and experience are often downplayed or simply ignored. In some sense, this is not a surprise, since abstract concepts like *AESTHETICS* are difficult to characterize. We now elaborate this issue.

What Does an Abstract Concept Look Like? Classic Approaches

Abstract conceptual representations can be murky and hard to express. Consider *INJUSTICE*. Unjust events can manifest themselves in multiple physical formats: a student stealing a library book, an attorney engaging in jury tampering, or a CEO skimming company profits. Each of these scenarios arouses rich perceptual imagery that is as unique unto itself as to each individual who does the conjuring. While each scenario's perceptual qualities render instances of *INJUSTICE* that are seemingly unique and independent, they all participate in this category domain, and people generally know injustice when they see (or imagine) it. But how is it that despite these perceptual incongruities people can still recognize the "essence" of an abstract concept across various category instances?

Addressing this issue, Boroditsky and Prinz [13] defined abstract concepts as those "whose category instances are not unified by a shared appearance" (p. 101).

Unlike chairs or squirrels, which tend to give common perceptual experiences to observers, abstract concepts are not perceptually unified, and observers must dig more deeply to access abstract meaning. Aesthetics is quintessentially abstract in a number of ways. At the levels of conceptualization and production, aesthetics can take multiple perceptual forms (music, visual art, film, giant safety pins) limited only by one's ingenuity. Further, the manner in which art is perceived is sufficiently abstract by virtue of the ways people typically describe their aesthetic reactions, often evoking terms like "beauty," "good," and "poor," which are themselves abstract and hence reference ideas and principles, versus concrete metaphysical states with which others can objectively agree. To this end, some researchers argue that abstract and concrete concepts are so different that they are represented in fundamentally distinct ways in the human mind and brain. Of critical concern are the mechanisms and processes that underlie abstract and concrete conceptual representations, which we now address.

Representing and Processing Abstract Concepts: Take One

In the 1970s, one of the primary debates among cognitive psychologists was whether people think in pictures, words, or some other symbolic format, with some arguing that people typically represent concepts in analogue states akin to perception [14, 39, 40, 73], and others maintaining that such imagery is epiphenomenal to underlying amodal, propositional mechanisms [68]. Whether people think in pictures, words, or symbolically, both approaches similarly posit *amodal symbols* to explain how *abstract* concepts are represented and processed (e.g., the "abstract" channel in Paivio's [64], Dual-Coding Theory). According to Barsalou [4] and Prinz [66], amodal symbols are those which do not participate in a specific sensory code. In other words, amodal symbols are divorced from the original sensorimotor patterns of activation that accompany perception during the acquisition and experience of category instances. Classic cognitive models like these treat abstract conceptual representation and processing as a set of symbolic computations performed on semantic nodes, units, or features. Most importantly, amodal symbols appear to be the primary couriers of thought, such that any sensorimotor or perceptual information is virtually absent from their representations.

Prima facie, it seems hard to imagine how a perceptually rich domain like aesthetics could be carried by amodal information. Further, if amodal symbols do actually account for the lion's share of how concepts – particularly abstract concepts – are represented and processed, then it seems cognitively taxing to convert sensorimotor and perceptual information into amodal symbols, store them, and subsequent re-convert them into perceptually rich representations when conceptualizing, producing, or evaluating art. A more parsimonious account would allow the perceptual information to represent aesthetics itself rather than adducing additional symbolic systems.

The Rise of Grounded and Embodied Cognition

Embodied cognition is a loaded term that has become a buzzword in contemporary cognitive science. Far from a new idea, versions of embodiment have been expressed throughout history [34, 56, 79]. Today, most embodiment researchers claim that sensorimotor and perceptual experiences are fundamental to cognition. In other words, one's bodily interactions with physical and cultural environments provide the raw materials for cognition in terms of both representation and processing [19, 61, 78]. To date, Barsalou's Perceptual Symbol Systems (PSS) (1999, 2008) is the most sophisticated theory of cognition that uses perceptual information to explain both abstract and concrete conceptual processing.

According to PSS, concepts are represented by modality-specific symbols. Both Barsalou [4] and Prinz [66] explained modal representations as those which carry information through specific sensory codes. In every experience of a category exemplar, one's perceptual state is naturally accompanied by unique patterns of sensory activation, which are later stored in long-term memory as perceptual symbols. When concepts are activated during cognition, perceptual symbols accrued through experiences are stimulated and run as *simulations*, off-line patterns of brain activation that re-create perceptual experiences through modality-specific arousal. Following Barsalou [5], it might be more constructive to use the term "grounded" rather than "embodied" because the former stresses the importance of *perceptual* information in conceptual processing rather than the "assumption that…bodily states are necessary for cognition" (p. 619).

At its core, PSS is a multimodal representational system. Barsalou [4] held that simulations are not run *precisely* as the original instantiation; instead, they are variable constructions formed in working memory, and each simulation is unique to the context, task demands, affective states, and subjective embodiment that elicit it, enabling cognizers to draw inferences, categorize, and discover novel instances on a case-by-case basis. Is there any empirical support for this view? Yes. So much so that a review of all the confirmatory literature would outstrip this chapter (see Barsalou [5], for a review). However, some have argued that perceptual symbols are ill-equipped to handle abstract concept, arguing instead for a kind of representational "pluralism" or "interactive grounding" that uses both perceptual and amodal symbols, where the latter is responsible for more abstract processes [24, 57]. An alternative, and increasingly popular, account continues to situate perceptual symbols as vehicles of abstract thought but incorporates a metaphorical mechanism to ground meaning in bodily states.

Representing and Processing Abstract Concepts: Take Two

One of the most popular strategies for handling embodied effects in abstract processing is *conceptual metaphor theory*, which was originally postulated by Lakoff and Johnson [49]. According to this view, concrete, embodied domains provide the

foundational information from which abstract domains extract their meaning. This metaphorical mapping in concrete-to-abstract domains motivates linguistic devices that people use to describe their cognitions. For example, declaring that "Ben looks up to his father" is motivated by the UP is GOOD metaphor, which may have developed as a result of the statistical co-occurrences between height patterns, comfort, power, and attachment in standard child-caregiver relationships. In this vein, several programs of research have confirmed that verticality is metaphorically linked to concepts involving goodness, power, and the like [59, 70].

Metaphorical strategies have become increasingly more detailed over the last few years (see [Ijzerman and Koole 35, Lakoff and Johnson 50, Landau et al. 51, Lee and Schwarz 53], for reviews) and there is even neural evidence supporting the view that embodied source domains can be used to ground meaning in more abstract processes [2]. Consider a recent series of experiments. Slepian et al. [75] directed participants to recall meaningful (vs. insignificant) secrets and found that the emotional guilt participants' suffered as a result of the recall physically weighed them down: they judged hills to be steeper, perceived distances as farther, and indicated that physical tasks would require more effort, among other findings. These results are important for a few reasons but, in keeping with the theme of this chapter, we will focus on just one: the embodied nature of emotions and their service as crucial source domains.

Emotions and Abstract Processing

Emotions are an important source of embodied information that both illustrate and breathe life into our conceptual architecture. Across psycholinguistics, social cognition, cognitive neuroscience, and moral psychology, researchers have found that affective information is central to the representation and processing of abstract concepts [20, 22, 26, 33, 42, 71, 72]. For example, Kousta et al. [42] found that emotional valence plays a critical role in the processing and representation of abstract words. After controlling for imageability, concreteness, context availability ratings, and other linguistic factors, participants were given a standard lexical decision task. Results showed that abstract words were processed faster than concrete words – contradicting earlier research suggesting concrete words are processed faster because there are more "cues" and perceptual information to facilitate retrieval and processing. To show that emotion drives this effect, they conducted another study with a large set of emotionally "neutral" rated words varying in concreteness and imageability. They predicted and found that concreteness and imageability did *not* significantly predict lexical decision reaction times; in other words, lack of emotional information in the words created a null effect for processing speed. Finally, with moderate-to-high frequency words spanning the entire range of emotional valence, concreteness, and imageability, emotion emerged the only reliable predictor of reaction time. In sum, Kousta and colleagues argued that affective information is plays a crucial role in abstract embodied semantics.

Research in social cognition likewise suggests that higher-order cognitions like interpersonal judgments also have foundations in affect. For instance, Clore's [20] affect-as-information view argues that emotions inform judgments, decision making, and general information processing strategies at a very basic level – as input arrows to a cognitive model, so to speak. Schwarz and Clore [71] found that participants rated life satisfaction as higher when they were interviewed on sunny spring days (when moods were positive) versus rainy spring days (when moods were negative). Similarly, after being primed with happiness or sadness (via a writing exercise about a personal life experience), "happy" primed participants reported greater life satisfaction than "sad" primed participants. This approach assumes that emotions act as types of information designed to guide cognition, both implicitly and explicitly: emotions that are acquired experientially and linked to various stimuli become instrumental to cognition when they again arise in the presence of similar stimuli. In this way emotional states can serve as input arrows to direct the flow of judgments and decision making.

This perspective is consistent with that of Damasio [22], who drew from neuropsychological findings to advance an emotional approach to cognition. In his influential *somatic marker hypothesis*, emotions refer to a unique family of representations that carry information about homeostatic changes in the brain and body across a broad array of contexts, where the contextual features are also represented as forms of external stimuli with corresponding response options. This embodied, emotional information is encoded and stored so that similar subsequent situations will reactivate one's "somatic markers" to facilitate decision making. This process also helps make highly complex problems more tractable by increasing the strength of the somatic marker's signal, and thus one's reliance on "gut feelings," so to speak. In this view, one's internal, emotional, and somatic representations can become linked with one's representations of external stimuli and their contexts to enable the brain to efficiently determine to degree to which various external stimuli are beneficial or harmful and to select appropriate responses (see also Bechara et al. [8]).

In sum, emotions play an important role in abstract conceptual representations and processes across a wide range of tasks and situations. Capping this argument, Anderson [2] took a massive sample (1,469 fMRI studies) spanning 11 task domains (action execution, action inhibition, action observation, vision, audition, attention, emotion, language, mathematics, memory, and reasoning) and found that older areas of the brain were significantly more likely to be involved with later-developed functions, that more recently evolved faculties were more distributed and activated more regions than evolutionarily older faculties, and that general cortical regions[1] were activated in nine different task domains. Together, these results reveal how older regions (e.g., limbic system structures like the amygdala) are recruited for higher-order cognition involving the representation and processing of abstract concepts.

[1] There were 66 total regions analyzed in this study (e.g., fusiform gyrus, caudal middle frontal cortex, inferior parietal cortex, posterior cingulate cortex, superior frontal cortex, parahippocampal cortex, etc.).

Explaining Aesthetics with Embodied Information

Earlier we said that aesthetics is a quintessential abstract domain in terms of its representation, production, and evaluation. While classical cognitive theories would argue that aesthetics is represented and processed in abstract, amodal codes, we argue the opposite, given the intrinsically perceptual nature of most art. Further, we showed how embodied approaches can use perceptual symbols to ground meaning in both concrete and abstract representations, a view for which there is a significant and growing body of evidence. Findings from neuroscience, psycholinguistics, social cognition, and other disciplines indicate that a range of conceptual processing can be accounted for by two types of perceptual information (sensorimotor and affective states). Thus, an embodied approach to an abstract domain like aesthetics should fruitfully inform our understanding of that domain. Much extant research on perceptual symbols has focused on sensorimotor information; however, affective information, which is also embodied and a potentially significant metaphorical source domain, also seems critical to abstract conceptual processing in domains like aesthetics. Notably, the language of art is often painted in emotional terms, as revealed by the following statement by painter Wassily Kandinsky:

> The similarity of inner strivings…this similarity of the inner mood of an entire period can lead logically to the use of forms successfully employed to the same ends in an earlier period. Our sympathy, our understanding, our inner feeling for the primitives arose partly in this way. Just like us, those pure artists wanted to capture in their works the inner essence of things… ([37], p. 97).

Following Kandinsky's lead, we now turn to the sensorimotor and affective components of aesthetics with a special focus on the visual arts for the remainder of this chapter.

How Is Visual Art Represented?

Generally speaking, representation refers to the way in which "something … denotes, designates, stands for, refers to, or is about something else" ([67], p. 54). Representational objects can take different semiotic forms (e.g., icons, indices, symbols), and visual art regularly uses all of these [9, 62]. Most critically – and unlike icons and indices – symbols do not share a natural relationship with their referents; symbols are fundamentally arbitrary and are a function of rules or social conventions. Words, ampersands, and extended middle fingers are equally symbolic.

Different styles and forms of visual art involve different kinds of representations, in which distinctions between, say, icons and symbols are not always clear. Consider styles of art that include depictions of objects that are intended to be recognizable. Such styles need not be realistic or photographic; indeed, the vast majority of depictions prior to pre-classical Greece, and in non-Western cultures generally, are often characterized as 'symbolic' or 'conceptual' [32]. The fact that we easily recognize

many symbolic depictions indicates that they carry enough perceptual information to successfully activate appropriate mental representations of objects. These may include Marr and Nishihara's [58] generalized cylinders, for articulating objects' main axes, or Biederman's [11] non-accidental properties of depiction, such as line intersections, which provide clues to three-dimensional object structure and which have been depicted in consistent ways for some 17,000 years [12]. In such styles, the features that make an object recognizable as, say, a person or a horse tend to be stereotyped and simplified and to reflect viewpoint-invariant regularities that maximize the legibility of the form [79].

With the advent of realism as an avowed artistic goal, the nature of artists' representations changed – in a nutshell, from being object-centered to more viewer-centered. This entailed the need to pay close visual attention to images derived from perception rather than from knowledge, in order to convincingly render viewpoint-specific effects like changes in proportions due to foreshortening, transient effects due to uneven lighting or movement, and so on. This dynamic need not imply a so-called 'innocent eye,' whereby artists operate in purely bottom-up mode of perception. Instead, Gombrich's [31] classic account of the evolution of realism emphasized the inherent difficulties of drawing what one sees, arguing that to succeed at realism artists must arduously develop rich depictive schemata that facilitate appropriate selection of important visual information (see also Kozbelt [44, Kozbelt et al. 46, Melcher and Cavanagh 60]). Such schemata include declarative information on the structure and proportion of common objects, systems of perspective and shading, as well means for rendering appropriate effects in a given artistic medium (e.g., [17]).

The representations underlying both symbolic and realistic styles of depiction are typically characterized mainly in visual perceptual terms – though, as we have just seen, these may be either object- or viewer-centered. This perceptual slant is also true of artistic styles like Analytic or Synthetic Cubism, in which objects remain recognizable despite significant abstraction. It is also probably true of many completely abstract artistic styles – for instance, Mondrian's late geometric paintings, which are frequently characterized in terms of their '*visual* rightness' ([55], italics added). The key general point is that for most artistic styles, the hypothesized underlying representations are rarely linked to anything beyond the eye and the brain – there is, for instance, little in this literature that strongly implicates motor actions or other aspects of embodied or grounded cognition as essential aspects of the representation.[2]

The extent to which some artistic styles may involve completely amodal representations is an open question. In principle some forms of abstract art may largely revolve around amodal representations. This may be particularly true of works that are very visually stripped down (e.g., Agnes Martin's grid paintings or Robert Ryman's white paintings), relying on extra-visual information about the artists' intention for an aesthetic effect. Amodal representations are also likely characteristic

[2] An important exception may be the Action Painting wing of Abstract Expressionism (e.g., Jackson Pollock, Willem de Kooning, and Hans Hofmann).

of purely Conceptual art, in which there may not even be much of a pictorial image to experience, like in Walter De Maria's *Vertical Earth Kilometer*. Here, the conceptual properties of the work are more properly imagined than perceived, and while amodal symbols might play an important role in abstracting meaning out of a conceptual aesthetic experience, it seems most plausible that the meaning is fundamentally *grounded* it how it makes viewers *feel*.

Perceptual Kinds and Conceptual Kinds

As described earlier, perceptual symbols/states come in two natural kinds (sensorimotor and affective[3]), and they contribute to conceptual representation and processing in different ways. In particular, the evidence we have reviewed suggests that sensorimotor symbols are better candidates for carrying information about concepts that are high in concreteness, whereas affective symbols better handle concepts high in abstractness. This is a reasonable and parsimonious account because it uses naturally occurring perceptual information to represent stimuli. It is also evolutionarily sound and consistent with current findings from cognitive neuroscience showing that lower-level functions/processes (perceptual) are actively recruited/reused during higher-order cognition [2]. However, the differential, task-specific aspects of aesthetics suggest that both kinds of symbols may be recruited, but at different times.

A Dual-Continuum Model for Representing and Processing Aesthetics

Drawing from extant findings in conceptual processing, aesthetics, and grounded/embodied cognition, we propose the following dual-continuum model. The first continuum deals with sensorimotor information (anchored with low/high sensorimotor information). It predicts enhanced [degraded] representation/processing for *concrete* concepts on the high [low] sensorimotor end and enhanced [degraded] representation/processing for *abstract* concepts on the low [high] end. Conversely, the affective information continuum (anchored with low/high affective information) predicts enhanced [degraded] representation/processing for *abstract* concepts on the high [low] end and enhanced [degraded] representation/processing for *concrete* concepts on the low [high] end. Using these two channels of embodied information simultaneously enables us to make fairly specific predictions about representation/processing of all kinds of concepts. It further allows us to tailor these predictions based on the unique task demands of the target conceptual representations and the individual differences of agents, as we will demonstrate in later sections.

[3] However, see Barrett's [3] insightful review on the status of emotions as natural kinds.

Consider some examples. Take the prototypical concrete concept of *SQUIRREL*. Here, we can account for most of the variation in conceptual processing by appealing *first* to the sensorimotor channel. Here, processing this concept probably activates sensorimotor rich information immediately (e.g., what squirrels look like, sound like, feel like, potentially taste like, etc.); theoretically, inhibiting such information should consequently degrade one's squirrel processing. While agents might also have particular emotions towards squirrels, this information probably becomes activated *second* and involves more abstract aspects of one's *SQUIRREL* concept ("goodness," "value," etc.). Again, note how both channels of embodied information are incorporated in this representation, but given squirrels' prototypical concreteness, sensorimotor information can handle the lion's share of immediate processing[4] while affective information carries its abstract representational properties.

Now consider *AESTHETICS* – in particular, visual art. As stated earlier, this is a perceptually rich domain, yet it is simultaneously populated with various conceptual definitions and category exemplars, which renders it quite abstract. According to the research we have outlined, its *general* conceptual processing should be predicted *first* by the affective channel. Experiencing a work of visual art should immediately activate people's gut feelings about its quality, meaning, value, etc., and inhibiting such feelings should degrade one's aesthetic processing. Of course, the objection could be raised that it remains unclear whether the representation is fundamentally affective-based or whether emotions are epiphenomenal to an underlying amodal representation. While we do not doubt that some kind of amodal information might play a role in aesthetic representation/processing, we argue that amodal symbols alone render this conceptual domain impoverished and that most of the variance in processing can be accounted for by perceptual information, which is where *meaning* is fundamentally grounded. We now turn to aesthetic production and evaluation to bolster support for our claims about the embodied nature of aesthetics.

Aesthetic Production

The mental processes and representations underlying the production of visual art remain contentious and mysterious – even for the relatively narrower domain of realistic drawing, which has been the focus of research to date. However, in most

[4] Barsalou et al. [6] research provides support for our proposed model through their Language and Situated Simulation Theory (LASS), which shows how sensorimotor information is used to process concrete concepts. According to this view, when one encounters a word, the linguistic and simulation systems are activated simultaneously. The linguistic system peaks first in activity and is responsible for categorization, spreading activation, and other shallow, word association-based processes. The simulation system peaks later and is responsible for developing concepts more deeply, which is accomplished through modality-specific simulations. Prima facie, it appears that Barsalou et al. endorse a pluralistic view of representations; however, it is important to stress that their basic thesis remains constant: the representation of conceptual meaning is fundamentally grounded in the brain's modality-specific systems.

discussions of artistic production, disembodied perceptual factors remain very much on center stage. Probably the most popular view of artists' advantages in realistic drawing is the *misperception hypothesis* (e.g., [21]), whereby drawing errors are mainly driven by errors of perception – for instance, in failing to overcome perceptual constancies involving the size and shape of objects. The misperception hypothesis resembles the notion of an 'innocent eye' [30, 69], whereby artists are able to engage in more veridical perception by overcoming the interfering effect of object categories typical of everyday perception. This distinction echoes the contrast between object- and viewer-centered representations described above, in section 1.3; however, the nature of artists' representations under the misperception hypothesis is unclear, since its bottom-up dynamic involves suppressing knowledge rather than activating it. Moreover, despite its intuitive appeal and prevalence, evidence for the misperception hypothesis is mixed. Indeed, recent studies [63, 65] indicate that while artists sometimes show reduced constancy effects, this reduction is insufficient to explain their drawing advantages (see also Kozbelt [43]). Finally, Gombrich [31] famously argued that the innocent eye is logically inadequate, failing to account for visual selection processes that are necessary to facilitate object recognition in renderings.

Is there a viable theoretical alternative to the misperception hypothesis, which would better describe the representations involved in artistic production? One such (embodied) alternative is that of Kozbelt and Seeley [48], who developed Gombrich's [31] notions of artistic schemata into a model of artists' advantages in drawing and perception. Gombrich's knowledge-driven perspective highlights the importance of visual selection and hypothesis testing as inherent aspects of the depictive dynamic – processes that are also central to visual processing in general. Kozbelt and Seeley's model postulates two main sources of artists' advantages. One is artists' specialized, declarative knowledge [31], which highlights important aspects of objects to include in depictions, and plays a productive role in attentional deployment and perceptual hypothesis testing in object recognition [41].

The other involves motor plans derived from the proceduralization of this declarative knowledge through extensive practice in an artistic medium [1], whereby this information is joined to general problem-solving heuristics and re-represented as motor plans, which in turn shift attention to features diagnostic for recognition (as in Kosslyn [41]; see also Tse and Cavanagh [76]).

In terms of our general argument, the key point is that the representations underlying aesthetic *production* can also be profitably viewed through the lens of embodiment. Artists' proceduralized knowledge impacts not only their ability to make marks on a surface more efficiently, but it also influences their perception in fundamental ways. Moreover, as great artists gain superlative levels of mastery in rendering, their manner of production becomes arguably the most attention-grabbing aspect of their art (see Kozbelt [45]) – witness the astonishing virtuosity of late paintings of Velázquez or Titian, or the phenomenal dexterity evident in complex single-line drawings by Picasso. Identical principles apply to completely abstract artworks by Abstract Expressionist Action Painters. In sum, the role of embodiment in the perceptual-motor integration required for the production of art cannot be overestimated.

Aesthetic Evaluation

As with aesthetic production, an embodied perspective also informs aesthetic evaluation. Art is often said to be "moving." Interestingly, this linguistic marker can be taken quite literally and reveals much about cognition in a broader sense. For example, Freedberg and Gallese [29] describe evidence for the view that mirror neuron systems provide a basic foundation for our emotional and empathetic responses to art, which they believe is central to aesthetic experiences. They argue that viewing a painting or sculpture involving the human form recruits the same physiological activation in the viewer as if they were performing those actions indicated in the artworks themselves, quite literally giving viewers specific perspectives. Treating mirror neuron systems as a foundation for emotional capture, arguably emotions are fundamentally involved in aesthetic evaluation.

There is converging evidence suggesting that emotions are not simply by-products of evaluation but rather play critical roles in the emergence of aesthetic perception. Centuries ago, Edmund Burke [16] argued for such a view in declaring that "terror…is the ruling principle of the sublime" (p. 54). To empirically investigate Burke's claim, Eskine et al. [25] tested the effects of incidental emotions like fear and happiness, as well as general physiological arousal, on people's evaluation of visual art. Strikingly, the results supported Burke's view; those primed with fear (via a short video clip) rated various abstract paintings by the artist El Lissitsky as significantly more exciting, stimulating, and moving than those primed with happiness, those who experienced general physiological arousal (via jumping jacks), and those who sat normally (control group), with the latter three groups showing no reliable differences in their evaluations. Introspectively, it seems like happiness would be a better candidate for predicting positively-valenced aesthetic emotions; however, Burke was clear about this when he argued that while fear underlies the sublime, happiness underlies judgments of beauty. It is important to note that the above study did not assess beauty or the extent to which participants actually *liked* the art or not, which remain important questions for future research.

If emotions are critical to aesthetic evaluation, then brain regions implicated in emotion processing should become activated during aesthetic evaluation. There is considerable support for this link, with results connecting aesthetic evaluation to several such regions (orbitofrontal cortex and the anterior cingulate gyrus, [38]; left cingulate sulcus, bilateral occipital gyri, bilateral fusiform gyri, and right caudate nucleus, [77]; posterior cingulate, frontomedian cortex, and the temporoparietal junction, [36]; see also [Chatterjee 18, Di Dio and Gallese 23], for general reviews). In particular, a recent meta-analysis of 93 neuroimaging studies across four modalities (visual, auditory, gustatory, and olfactory) revealed that positively-valenced aesthetic evaluations were associated with brain regions (e.g., right anterior insula) implicated in processing negatively-valenced emotions [15]

The empirical evidence offered thus far supports the view that emotions are uniquely tied to aesthetic evaluation. Again, according to our model, the majority of aesthetic evaluation processing is carried by embodied, affective states, where our

gut feelings act as important sources of information that guide our judgments about art (and potentially other types of abstract exemplars as well). Considered another way, since exemplars from abstract categories cannot be unified by sensori-perceptual and motor states alone, their meaning is thus grounded in the natural- and seemingly ubiquitous- affective responses of agents.

Exploring Unique Predictions for Individual Differences: What About Expertise?

Reconsidering Freedberg and Gallese [29], it is interesting to ponder the effects of expertise on aesthetic evaluation. According to their account, in viewing a work by Jackson Pollock, "viewers often experience a sense of bodily involvement with the movements that are implied by the physical traces – in brushmarks or paint drippings – of the creative actions of the producer of the work" (p. 197). In line with this idea, Leder et al. [52] found that participants judged artworks to be more pleasing when they simulated hand movements implied by the brushstrokes unique to each piece. Going further, one's knowledge and expertise in visual art can enhance the activation of the sensorimotor information required for art production. Thus, in evaluating art, experts may also be likely recruit sensorimotor information, resulting in degraded affective activation. Put another way, trained artists are often directed to suppress emotional cues when critiquing art to better grasp its functions. Indeed, recent findings showed that experts' visual art evaluations were not affected by an emotion induction (happiness), whereas novices induced with happiness judged various works more favorably compared to non-induced novices [27]. These results help confirm the critical role of affective states in aesthetic evaluation.

Conclusion

In Rene Magritte's famous *La Trahison des Images*, he firmly declared that "*Ceci N'est pas une Pipe,*" pointing to the representational function of art. We took aim at exactly *how* art might be represented by exploring potential mechanisms undergirding this complex conceptual arena. We have argued that embodied, perceptual information grounds concrete and abstract meaning in sensorimotor and affective channels, respectively, as evidenced by numerous findings from the cognitive sciences. In particular, we found support for our account by disentangling results from both aesthetic production and evaluation, with recent empirical support even demonstrating that individual differences in aesthetic expertise can moderate the activity of such perceptual channels.

(continued)

We have also maintained throughout this chapter that aesthetic meaning is grounded in the brain's modality-specific centers and that this embodied information provides the raw materials for representing and processing aesthetics-related concepts. Going beyond empirical data, one might introspectively arrive at a similar conclusion. Art can be profoundly gripping, revolting, wondrous, and sublime; it can turn stomachs, elicit goose bumps, and send shivers down spines. Hence, it is no surprise that these sensory-rich, phenomenal-based data go beyond mere gut reactions and adduce meaning and value to aesthetic domains as a form of sensory cognition [7].

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Chapter 11
The Experience of Literariness: Affective and Narrative Aspects

David S. Miall

Abstract This chapter presents a concept of the embodied mind in literary reading. Arguing for the body as an active participant in shaping the aesthetic experience, it begins with examples of the active body taken from Donne, Woolf, and Wordsworth. Empirical study of readers' systematic responses to foregrounding (striking stylistic elements) is then shown to demonstrate the central role of feeling (Miall DS, Kuiken D, Poetics 22:389–407, 1994), while a follow-up study (Kuijpers MM, Miall DS, Bodily involvement in literary reading: an experimental study of readers' bodily experiences during reading. In: Hakemulder F (ed) De stralende lezer: Wetenschappelijk onderzoek naar de invloed van het lezen. Stichting Lezen Reeks (Dutch Reading Foundation), Delft, pp 160–182, 2011) verifies the bodily effects of foregrounding. A review of ERP (evoked response potential) studies of emotion and language lends support to the claim that the early response to foregrounding, occurring less than 500 milliseconds after the encounter with a word, is likely to be characterized by feeling. The last section of the chapter reports on the ambiguities of the unreliable first person narrator of Graham Greene's short story "The Innocent." The responses of one reader to the story are analysed, showing the conflicts of feeling that shape her understanding and that have grown out of the reader's embodied mind and feelings. For her the power of the story appears to lie in the issues it leaves unresolved.

Keywords Literary reading and the embodied mind • Foregrounding • First person narrator • Reader's embodied mind • Feelings

Introduction

If literary reading is distinctive in relation to other linguistic and media experiences, evidence for it comes in part from the embodied nature of our responses to literariness. Much important research on literature has been grounded in the concept of the

D.S. Miall (✉)
Department of English and Film Studies, University of Alberta, Edmonton, Canada
e-mail: david.miall@ualberta.ca

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body as the source of metaphor [25]. But in this chapter my concept of the embodied mind calls for a different literary aesthetic, one based on a close and detailed study of the sequence of responses that characterize the literary experience. This will require both a theoretical framework and a review of empirical evidence for the role of foregrounding and feeling. Rather than a study based on cognitive constructs, such as deixis, schema theory, or possible worlds (e.g., Stockwell [37]), which would include discriminating cognition from affect (e.g. Damasio [8], Ellis [12]), I look in some detail at affective embodiment, that is, the body as felt and experienced during a literary reading. In this chapter, then, I consider first some implications of the body as a basis for the experience of literariness. I then offer accounts of feeling and the body in the light of several empirical studies of foregrounding, followed by a review of the implications of ERP (Evoked Response Potentials) studies of response to language and feeling. Finally I examine ambiguities and conflicts of feeling as components of literariness with the help of a further empirical study [2].

Literal Embodiment

Examples of an embodied aesthetic can be found explicitly scattered through the history of literature. By this I mean not merely references to the body, but occurrences that present the body as an active participant in shaping the aesthetic experience – as I will now show with a few examples. First, it should be pointed out that in early English literature regard for the human body is often deprecated by a Christian sense of sinfulness and disgust. In a sermon of 1610 by John Donne, for example, he complains: "Between the excremental jelly that the body is made of at first, and that jelly which thy body dissolves to at last; there is not so noysome, so putrid a thing in nature" ([7]: 135, from Donne [10]: 3: 105). In contrast, it is thus the more surprising to find Donne praising Elizabeth Drury, deceased at age 14, in terms of her body:

> We understood
> Her by her sight, her pure and eloquent blood
> Spoke in her cheeks, and so distinctly wrought,
> That one might almost say, her body thought (John Donne, "Of the Progress of the Soul: Second Anniversary": ll. 243–6; from Donne [11]: 294)

Foregrounding the metaphor of her blood as language creates another kind of being, exalted, spiritual, and almost visibly embodied. The body reflects mood and the play of feelings, while its visible signs are able to communicate to others (processes such as blushing or emotional contagion may be in question here).

Examples of an embodied aesthetic occur in the work of Virginia Woolf. In her novel *The Years* (1937) we watch Martin walking across London and arriving at St. Paul's Cathedral. "He crossed over and stood with his back against a shop window looking up at the great dome. All the weights in his body seemed to shift. He had a curious sense of something moving in his body in harmony with the building; it righted itself: it came to a full stop. It was exciting – this change of proportion"

([41]: 216). Here is evidence of the active role of the body in shaping an aesthetic experience, a process of which Martin is conscious. How often do we similarly become aware of the body shaping such experience, whether of music, painting, dance, or literature? Or do such experiences more usually occur unconsciously? Martin cannot recover the sensation when he returns that way later, following an irritating encounter: "He wished he could feel again the sense of weights changing in his body and coming to a stop; but the queer thrill of some correspondence between his own body and the stone no longer came to him" (222). It seems that the experience is not voluntary; it cannot be willed.

Another example foregrounds the experience of words as alive, changeable. North is reciting lines from a poem by Marvell to his sister Sara. "He began again. The words going out into the room seemed like actual presences, hard and independent; yet as she was listening they were changed by their contact with her" (322). Woolf's notion of contact (words on the body) underscores the individuality of reception shaped by an embodied response – perhaps more likely to be the case when the language is poetry or another literary genre rather than an ordinary text such as a newspaper report.

These examples witness Woolf's sensitivity to bodily experience as a part of the aesthetic process (Martin's response to the cathedral; the effect of Marvell's poem). She is also able to provide vivid accounts of the bodily experiences of her characters. Here, for example, is Roderick Serle in her short story "Together and Apart" in conversation at a party: "there it had happened; the old ecstasy of life; its invincible assault; for it was unpleasant, at the same time that it rejoiced and rejuvenated and filled the veins and nerves with threads of ice and fire; it was terrifying" ([40]: 193). This experience of "ice and fire" anticipates the main issue of the story, how Serle and Miss Anning long to make contact but are too reserved to achieve it.

Woolf's ability to represent states of the body in her fiction has been noticed by commentators. The novelist Mary Gordon in "Bodies of Knowledge" assigns a central place to the body in Woolf's writings when referring to an earlier novel: "the subject is life, or life seen as consciousness … The doubleness of anguish and exaltation is the body's own. For *The Waves* suggests that we learn who we are and what life is through the body" ([16]: 97–98). More specifically, she adds, "Singularity may be a chimera; it is moments of union, moments only to be sure, that strike the spine with the piercing and enlivening arrows of sensation" (98). In these comments of Gordon we add a third element: how the bodily experience and knowledge displayed by a text such as *Mrs. Dalloway* is mirrored in the reader's response, in feelings that seize the nerves of the body, the veins, the spine. We should note that these experiences are bodily ones, not cerebral, and that in each case it is feeling rather than cognition that develops the meaning. One other example will help display the same tendency.

In several of Wordsworth's poems we find him stressing the central place of feeling and the body in accounting for his response to nature. In "Lines Written a Few Miles above Tintern Abbey," for example, his memories of the valley of the River Wye from 5 years previously have remained with him, and he has "owed to them … sensations sweet/Felt in the blood, and felt along the heart" – one of Wordsworth's

insights into what we now regard as an affective memory; memories, he continues, that passed "even into my purer mind/With tranquil restoration" ([42]: 108–109; ll. 27–31). In his comment on the "purer mind" he prepares the ground for the mystical experience he goes on to describe, in which "even the motion of our human blood/ Almost suspended, we are laid asleep/In body" and "see into the life of things" (ll. 45–50). Wordsworth's theme of the body as a waystation to a sense of union with nature (the "One Life" theme[1] that preoccupied both Wordsworth and Coleridge in 1798) can also be found in his autobiographical poem *The Prelude*. In passages drafted that winter he speaks of his childhood experiences of "Those hallowed and pure motions of the sense" (*Prelude* 1850, I, ll. 551), and "that giddy bliss/Which, like a tempest, works along the blood" (ll. 583–4). These impulses are momentary and soon forgotten, as Wordsworth tells us, yet they have an enduring effect on shaping the person that Wordsworth will become.

Here, then, are four aspects of literary treatments of the body in the writings of Donne, Woolf, and Wordsworth: (a) a body adjusting to and shaping an aesthetic experience; (b) how predicaments and conflicts of characters are represented bodily; (c) the bodily knowledge presented by a text as mirrored by the reader; and (d) poetic expressions of how character is shaped by bodily experience. These point to various aspects of an embodied aesthetic – a perspective which is certainly far from complete, but offering some insights that supplement other currently available theories (e.g., [4, 32, 34]). These insights, however, occur where they do in response to the demands of the unfolding text. To verify their significance calls for empirical investigation of readers, based on the psychological experiences they represent. In each case what appears to be at issue are bodily feelings, since these seem implicated whether an aesthetic experience is being shaped (such as Martin's perception of the cathedral) or it is the feelings through which bodily-based memories shape character (such as Wordsworth's responses to nature). Also at issue is the extent to which the literary reader is aware of the affective processes entrained by different textual moments – such as a striking metaphor, an unusual rhythm, a passage of assonance, and the like. In empirical investigations of feeling we require studies that in some way both track the early unconscious response as well as the reader's awareness of the effect of such literary features. In the next section I describe three experimental studies that in part met these requirements, and I consider the sequence of the reader's response to such features in the light of recent ERP (Evoked Response Potentials) studies of language and feeling.

Studies of Foregrounding and the Body

The first empirical study of foregrounding was conducted by Willie van Peer [38]. He invited his participants to respond to short poems that he had previously coded, line by line, for foregrounded features. Participants underlined the words and

[1] For instance, "in all things/ I saw one life, and felt that it was joy" (*Prelude* 1805, 2, ll. 429–430. [43]: 88). This passage was deleted from the 1850 version of the poem.

phrases of a poem for how striking they found them. One of his central findings was that the number of underlinings that participants gave to each line correlated closely with the relative amount of foregrounding in each line. In other words, readers were systematically influenced by the presence of foregrounding. In addition, van Peer's study involved three groups of participants with different levels of education in the formal aspects of literature: a group trained in formal analysis, a group with basic university experience of literature, and a third group consisting of science students. No differences were found between the three groups in their responses to the presence of foregrounding. These two findings are particularly significant: the first helps support the theory put forward by the Russian Formalists in the early Twentieth Century that literary texts are characterized by unusual and striking features of language; the second demonstrates that foregrounding is an influence on reading regardless of the extent of literary training that readers have received – a finding that underlines Hogan's [21] claim that foregrounding is a universal feature of literature, appreciated by listeners and readers in every culture. Foregrounding, as we will see, is one of the features of literary texts that appear to be supported by a bodily response.

This first empirical study of foregrounding, however, left several issues unresolved. We [28] designed a study to investigate these, and based it on narrative rather than poetry. First, we expected the presence of foregrounding to retard the pace of reading, "to increase the difficulty and length of perception," as Shklovsky ([36]: 12) put it. Second, response to foregrounding seems likely to evoke feeling (it emphasizes "the emotional effect of an expression": Shklovsky: 9), especially to the extent that foregrounding has bodily effects. Third, in responding to a text it may be possible that readers identify what they find important in terms of plot and character from the evidence of foregrounding. We designed a study focused on foregrounding in narrative, and analysed three modernist stories by O'Faoláin, Woolf, and Mansfield for its presence, segment by segment. Readers read one of the stories on a computer screen, a segment at a time (a segment was usually one sentence, but the occasional long sentence was divided into two segments). As readers read at their normal reading speed, tapping the space bar to proceed to the next segment, the reading times per segment of each reader were recorded on the computer (readers were unaware of this). After this first reading was accomplished, readers were asked to read again, segment by segment, and on a scale of 1–5 provide a rating of the current segment on one of several criteria: strikingness (how defamiliarizing is this segment), intensity of feeling, importance, discussion value (supposing you were teaching the story in a class), and uncertainty. Like van Peer, our readers were recruited from one of two groups of readers who varied in their experience of literature: senior students of English, and first year students of Psychology who had little interest in or knowledge of literature.

Our expectations were met in each of the conditions. Whichever of the three stories was being read, and whichever group readers were from, the effects of foregrounding were evident. First, while reading at their normal speed, readers slowed down at the presence of foregrounding; the more foregrounding the more they slowed down. This has interesting implications for the processes involved in reading. For the O'Faoláin story [29], "The Trout," for example, mean reading times per

syllable were 258 milliseconds (standard deviation 96 msec); for passages high in foregrounding this rose to 354 msec per syllable, and for passages low in foregrounding decreased to 162 msec. Thus reading highly foregrounded passages took roughly twice as long as passages with little or no foregrounding. As consciousness, according to Damasio [8], manifests at about 500 msec following an event, this suggests that complex processing of stylistic and other aspects is likely to have occurred before we are aware of it; in particular, processing in response to the aspects of feeling that the literary passage provides may already have tapped into self-referential aspects and related autobiographical memories (as I will suggest later). The reader may then experience a defamiliarizing effect beyond the 500 msec phase, as consciousness intervenes.

Readers who rated the story segments for intensity of feeling were, without being aware of it, identifying how passages varied in foregrounding. That is, the greater the density of foregrounding the more intense the reader's feelings. That this was the case was also shown by readers who rated the segments for strikingness: these ratings correlated significantly with foregrounding, demonstrating that what readers found striking was primarily the presence of unusual and arresting stylistic features. Ratings for importance were not correlated with foregrounding, however, showing that the important aspects of plot or character did not coincide with foregrounding in any of the three stories. In "The Trout," for example, foregrounding occurs primarily in passages describing setting – passages which take on a symbolic meaning in relation to the predicament of the main character. Ratings for uncertainty, finally, also correlated with foregrounding, suggesting that the richer the stylistic density of a segment the more readers found its meaning difficult to interpret. For each of these results, as I mentioned, no significant differences were found in the degree of correlation, although the Psychology groups rather consistently gave lower ratings overall, suggesting that they approached the task more cautiously than the English student readers. At the same time, the similarity of their responses to the English group indicates that sensitivity to foregrounding appears to be inherent, owing little or nothing to whatever training in literary understanding these readers may have received.

The central place of feeling is demonstrated by these findings. Readers responding to foregrounding (and no doubt other components of a literary narrative) may situate themselves in relation to whatever experience the feeling promotes or recovers. As Damasio [8] puts it, the bodily and sensory information of an experience can be reactivated, simulating what the original experience was like. Memory consists of "The records we hold of the objects and events that we once perceived includ[ing] the motor adjustments we made to obtain the perception in the first place and also includ[ing] the emotional reactions we had then" (148). Summarizing a range of neuropsychological studies, Gibbs [15] proposes that language understanding "may best be described as a kind of embodied simulation, rather than the activation of pre-existing, disembodied, symbolic knowledge" (207).

To investigate the role of foregrounding in the bodily response of the reader, Moniek Kuijpers [24], carried out a study in our laboratory that focused on evidence of bodily participation. Kuijpers asked readers to read a short story and to

report whenever they felt a bodily effect by making a marginal note next to the passage being read. After reading they selected the five most important moments of bodily feeling, then marked which part of the body was affected on a body diagram, and described what they felt and where they felt it. The short stories employed in this study, either by Katherine Mansfield or Kate Chopin, had previously been analysed for foregrounding. Analysis of the results showed that in the case of Mansfield the frequency of bodily responses while reading correlated significantly with foregrounding in the passages being read, $r(128) = .197$, $p < .025$, while for the Chopin this correlation was highly significant, $r(64) = .335$, $p < .01$. This study, then helps to confirm the suggestion that readers' responses to feeling while reading may also implicate the body. In addition, Kuijpers's study asked readers to complete a scale measuring the trait of absorption: that is, how immersed in the process of reading did readers typically become. She found that those higher in absorption reported more bodily experiences on the body diagram, a significant finding in relation to readers of both stories (Mansfield, $r(28) = .442$, $p < .05$; Chopin, $r(26) = .460$, $p < .05$). This may seem a paradoxical finding: how can the more absorbed readers be more aware of their bodies while reading? Kuijpers explains this phenomenon as follows: readers "shift their awareness from their own body and the actual world around them to the story world. They experience *more* bodily feelings because they are *more* involved in the story. They experience the bodily sensations, feelings or emotions described in the story as if they were their own" (172).

In this context it seems likely that feeling is helping to determine the response to a text, bringing resources to bear where relevant not only from the body described by Damasio with its memories of motor and feeling adjustments, but also from episodic memory, self-concept issues, prototypical emotion scripts, intertextual references, and the like – responses that are occurring rapidly during reading, and for the most part below the level of consciousness, but sustaining a higher than normal level of feeling-based activity during reading. Through foregrounding literary reading, as Ellis puts it, "offers an affordance for a project of emotional exploration that is already underway" (177). An exploration that, as readers often observe, involves a sense of strangeness. This is most likely due to preconscious processing of foregrounded effects – processes that are engaged by enactive impulses already in train. In this context I consider the implications of ERP (Evoked Response Potentials) studies for the kind and degree of response to foregrounding early in the response process. This will be elaborated by a review of studies focused mainly on response to language.

Perhaps the first EEG study of a literary feature is that of Johann Hoorn [22]. Hoorn studied the effect of deviating from a semantic or phonological expectation in the last word of a four-line verse. Semantic deviation (an inconsistent word) produced an N400 shift (that is, a shift at 400 msecs following the appearance of the anomalous word); phonetic deviation (a missing rhyme) evoked significant negative shifts, N200, N400, and N700. Although the effects, being anomalies, are not specifically literary, Hoorn's paradigm can be regarded as a test of the defamiliarizing effects found in literature.

Other studies that I will now mention show that defamiliarization and some of its consequences occur as early, or earlier than the events in Hoorn's study. These evoked response potential (ERP) studies suggest, in other words, how much processing may be occurring prior to consciousness, or may remain outside awareness altogether. As I noted, Damasio [8] suggests that "We are probably late for consciousness by about five hundred milliseconds" (127). Several other researchers point to the slow advent of consciousness. Wegner [39] cites studies showing that we often react to a stimulus such as a word before we are aware of it. This can be shown by other ERP studies: those that examine brain events unfolding in response to language during the first few hundred milliseconds.

As I consider the train of underlying defamiliarizing processes suggested by a series of ERP studies, we can bear in mind this phrase from one of the short stories that participants read in our empirical work, O'Faoláin's "The Trout." Near the beginning of the story, the Dark Walk, an overgrown pathway in a garden, is characterized in part as follows: "a lofty midnight tunnel of smooth, sinewy branches." Foregrounded effects here include alliteration with repeated/n/and/s/sounds; at the semantic level occur two terms used metaphorically, "midnight" and "sinewy"; there is a slight suggestion of animacy in the term "sinewy"; in addition, there may be surprise at this word, since its occurrence in everyday language is undoubtedly infrequent. For the reader, coming to this phrase in its context in the story, what responses seem likely to unfold?

Basic recognition processes occur first. Ashby et al. [3] show that early processing of phonetic features occurs at 80 msec; word length and orthographic features are processed at around 90 msec. But then, also at an early stage, potential deviation may be detected: word frequency is assessed at around 110–170 msec; semantic coherence at around 160 msec. [20]. If a word is of low frequency or low predictability in its context, this has already been detected prior to the N200 window; as Dambacher et al. [9] show, it will also influence N400 amplitude, in line with Hoorn's findings. In the visual domain "The difference between the activation caused by novel and familiar objects can be shown in ventral visual areas within 155 ms after input" ([31]: 875). Thus within the first 200 msec, a defamiliarizing response is already in train: this would follow the reader's encounter with the unusual use of the terms *midnight* and *sinewy*, as well as an assessment of the unfamiliarity of the word *sinewy*. A reader may find the word *midnight* strange in itself, given its foregoing context; or strangeness may await realization of its placement as part of a metaphoric word pair, *midnight tunnel*.

The feeling of language is also processed early. According to Bostanov and Kotchoubey [5] the detection of emotional stimuli, what they call "nonverbal affective vocalizations," occurs at around 150–200 msec compared with semantic incongruity which is identified 100 msec or more later. Hence, they observe, "emotion may be grasped faster than meaning" (266; cf. [23, 33]). A parallel finding is reported by Scott et al. [35]: they showed that the response to emotional words differentiated positive from negative words at around 135–180 msec. The priority of emotion processing is suggested by their question whether "the emotionality of a word drives early lexical processes. Such evidence," they argue, "would indicate

that a word's affective semantics is not a consequence of but, rather, a component of its lexical activation" (95). The affective response to alliteration, that is, already helps shape the meaning assigned to the participating words, such as the "*s*mooth, *s*inewy branches." As we have found with think-aloud studies, reader's interpretations of this passage vary: for some the feeling evoked is that of a pastoral idyll; for others it suggests a threatening Gothic scenario.

This raises other questions. What is evoked by such rapid emotional processing? One important component appears to be memory, although the evidence is less clear. For instance, Hamann and Mao [19] in a brain scanning study (fMRI) examined the early response of the amygdala to verbal material, positive, negative, and neutral. This was not an ERP study, so the timing remains uncertain. However, activation of the left amygdala was found for both positive and negative words, but not neutral; interestingly, the response extended into the hippocampus, which points to the involvement of long term memory. In fact, the amygdala itself has been proposed as the site of an emotional memory for events by Jenefer Robinson ([32]: 70–71), and this and other structures (right posterior cingulate, right insula, right prefrontal, right hippocampus) have been implicated in autobiographical memory [14]. More generally, Hamann and Mao suggest, the amygdala "modulates the psychological and physiological internal milieu in order to deal adaptively with emotionally salient events" – a perspective which suggests that we might find links to the bodily forms of representation I mentioned also being enacted at an early stage. Thus it is possible that the amygdala is recruited widely during literary response given that the amygdala is now regarded by some scholars as responsive to a range of feelings, not just fear as formerly believed (e.g. [1]: 1022).

In addition to its functions in relation to memory, the hippocampus has also been shown to underlie the detection of anomaly or ambivalence [13]. The hippocampus has two functions in this respect: to detect conflict between competing courses of action; and to apply stored information to resolve current conflicts in thought. The hippocampus thus helps resolve ambivalence. Hence it is likely to be implicated in the uncertainties evoked during the response to foregrounding, such as the metaphoric use of the words *midnight* and *sinewy*.

The preconscious components of literary response also appear to include motor activation. Action descriptions based on verbs were studied by Boulenger et al. [6]. It was shown that arm movement and action verb interacted: if the arm movement performed by the participant contradicted the direction implied by the verb, interference was signalled at 160–180 msec after word onset. Although arm movements are not typically a feature of literary reading, the study suggests that the motor or premotor cortex is recruited early by action descriptions, especially in the light of mirror neuron studies that show neural activation by words connoting action, such as the names of tools [17, 30]. This would suggest that the "lofty midnight tunnel," which is the scene of running by the protagonist of the story, also invokes, while simultaneously inhibiting, the reader's motor system for running. In addition, as Boulenger et al. [6] point out, since the mirror neuron system that simulates experiences of the other can be activated by a word, empathic responses also seem likely to occur early in processing, prior to the window of consciousness. Underlying

empathy is our ability to recognize rapidly the motives and intentions of others, to invoke the "intentional stance" central to social cognition ([26]: 199). Readers, as we have noticed, typically take up several verbal cues in a story such as "The Trout" to substantiate and develop the protagonist – some even when merely presented with her name in the opening sentence.

We assume that the readers' experience of empathy and other feelings is modified as consciousness intervenes, and that at times feelings elaborate into a representation of the underlying issues of the text. As I have previously pointed out [27] feelings are likely to play a role in locating the problems that are presented by an unreliable narrator. In the last section of this chapter I look at the role of feelings in the light of readers' responses to a short story by Graham Greene.

The Ambiguity of Innocence

When encountering the foregrounding of unexpected or unusual features while reading, consciousness of them is said to be belated, given that comprehension is already underway prior to the 500 msec window described by Damasio [8]. Comprehension is signalled by the N400 wave, which is said to indicate the process of integrating a word into the prevailing context (hence its significance in Hoorn's study). A large N400 negative wave signals that the word is an anomaly (i.e., it may be defamiliarizing), and indicates that updating of the current textual model is underway. When a word is more predictable from its immediate or larger context a smaller N400 is seen. Left hemisphere activation of N400 is stronger when the task involves relating a word to its immediate context; the right hemisphere is active when the broader context of narrative is in question, including the frame shifts that are required by metaphor or humour – or by the more challenging passages in a literary story. In the present discussion we will focus in particular on ambiguity, especially in consideration of the role of feeling as a prime witness to the participation of the body during reading. It is clear that a more elaborate account of bodily involvement will be required than some models allow. Neural accounts of narrative comprehension now typically refer to the motor functions, sensory perceptions, and feelings that are invoked, in order to simulate the events portrayed by a narrative (e.g., [44]). Understanding narrative is thus profoundly implicated with embodiment. The readers in our empirical studies of literary reading show that a more complex set of cognitive and affective processes is also at issue.

The story in question, "The Innocent" by Graham Greene [18][2] (first published in 1937), is related in the first person. The protagonist tells us that he has picked up Lola, who appears to be an escort (he later says he paid five pounds for one night with her), and in the evening they have come to the town of his birthplace. The town evokes memories for him, and he begins to regret bringing Lola when he could have

[2] "The Innocent" is available online at http://www.docstoc.com/docs/80602348/Graham-Greene---The-Innocent.

savoured his childhood memories better alone. He leaves Lola at the hotel bar and goes out to revisit the town. Hearing a piano from a house up the hill, he remembers that he used to come to dancing lessons at the same house at the age of seven, and that he fell deeply in love with the girl who was his dancing partner. He believed she cared for him too, although otherwise they hardly met. He remembers leaving a passionate message for her on a piece of paper in a hole in the gate. The paper is still there. Taking it out, he sees that it is an obscene "childish inaccurate sketch of a man and woman." Shocked by it at first, later at night he reconciles himself to it: "I began to realize the deep innocence of that drawing."

The notion of innocence in the story is equivocal, providing one type of evidence that the narrator is unreliable. The narrator speaks of his early years in the town as "ordinary"; yet he later speaks of the "intensity" with which he loved. The girl's love for him is left in question: there is no evidence for it in his narrative. Can the obscene picture be innocent if it is drawn by a 7-year old? In these and other ways the narrator of the story appears to misrepresent or forget aspects of his story, and this presents an interesting challenge to its readers. In an empirical study we carried out with this story, senior students of English or Comparative Literature were invited to read the story section by section on computer and to think aloud about their responses after reading each section (we divided the story into 22 sections); we also asked them several specific questions about their responses after finishing the reading; their comments were later transcribed for analysis. In the following section I extract parts of one (female) reader's commentary. I will call the reader Sue.

Sue's responses, as might be expected, are devoted mainly to her attempts to grasp the local meanings of the story. This begins with the title, "The Innocent," which we asked readers to comment on before reading the story. Noting that the story dates from 1937 Sue guesses that the topic involves "probably aboriginal issues," that the title is "almost a recognition of the troubles that aboriginal people were facing back then" (this study is taking place in Canada). While her guess is wrong, it picks up the ambivalent sense that "innocence" now has, outside its legal uses (i.e., that no one now is innocent), and recognizes its relevance to the equivocal status of Canada's aboriginal people.

A number of her ensuing comments on different sections of the story show her involved in uncertainties and hesitations – in the wake, one might suppose, of an unsuccessful N400 response to reconcile possible meanings. For instance, her first few comments are dominated by the word "probably": she knows that her attempts to describe the meaning of a given section may be off target. For example, things may have changed in the town: he "probably thought that they probably wouldn't have and he's just – probably just noticing the familiarity of the place" (Section #2). This effectively captures the ambivalence of the narrator's response to the town: has it changed or is it completely familiar? Notice that the reader is enacting the narrator's stance, not just paraphrasing it – the term "probably" suggesting alternative construals that have remained undeveloped. This word "probably" occurs eleven times in the opening five sections, where she is trying to establish the situation model that will direct her reading; then it appears only twice more until it occurs six times in the last three sections where the status of the drawing is in question, together

with issues relating to the present, the past, the role of Lola, and above all what innocence might mean now for the narrator in the light of his comments on finding his youthful drawing.

Other examples of hesitation occur in response to the section that describes his love for the girl: "In this passage he's thinking again about when he was a child and it's a, a happy memory and he, he remembers uh, his love as a child, and – he thought it was an intense love that he never got over" (#14). Here again, the reader's broken syntax seems to indicate possibilities unrealized, including perhaps a moment of doubt over construing the love as happy – which is not what the narrator of the story says: in his words, "I loved her with an intensity I have never felt since, I believe, for anyone"; while such childhood love faces the "terrible inevitability of separation."

In the next section she picks up on this theme, and corrects herself over the nature of the love: the narrator, she says, "also acknowledges the fact there's really sat – there will be no satisfaction to gain out of such a relationship" (#15). Her comment here points very briefly to the possibility that the relationship could have been satisfactory, despite the narrator's emphasis: "One knows without being told that [marriage] can't happen, but the knowledge doesn't mean that one suffers less" (#15). She goes on to address the components of the ambiguity at this point in the story (did the girl care for him or not?), without making the conflict explicit: "it seems that he's finally got his chance to be with the, the one he loved. Not be with her, but acknowledge that fact, that there was something between them" (#16). In sum, these comments seem to suggest the attraction for this reader of a satisfactory love, like a counter-current that pulls from beneath and delays her identification of what the narrator is actually describing (the girl "always kept out of my way") (#15). But this invitation to an alternative view that the story holds out, an unrealized history, is an important part of how the narrative shapes response, and in this respect is a part of the initial response that has broken through to consciousness. The ambivalence at this point invites an ironic response from the reader (the narrator seems to be deluding himself in promoting the profundity of such childhood love). But the body cannot be ironic, so that at first the two realizations of this episode must exist side by side – both the invalidity of the claim and its hyperbolic overvaluation. In her comments we see the reader struggling with these contradictory positions, but eventually putting one aside.

Finally, as the narrator discovers the obscene drawing and tries to understand it, we see Sue attempting another resolution of some major ambiguities. In section #20 when the drawing is retrieved, the reader comments: "I think this passage, kind of – I didn't expect, his message he left for her was crude and quite – indignant I believe and he just, I believe he didn't believe he did that" (#20). We notice again the fragmentary presence of an alternative history: what had the reader expected, and who was indignant; and what was the narrator led to believe? Her subsequent comments also hint at elaborating an alternative scenario – principally, it seems, because the reader seems offended: "it's just quite shocking" (#20). She is trying to ameliorate the offensive implications of the picture. Her subsequent comments (too many to be considered here) show her being driven to accept the major enigma of the story,

what does a 7-year old's obscene picture from the past have to say about innocence? Already in #21 she describes the picture as "quite innocent," but a moment later that it takes "away from his memory of the innocence of it" (his love).

The responses of the body during the process of literary reading appear for the most part to remain below the level of consciousness. The reader we have studied here makes no mention of bodily responses, although we can surmise that the body is implicated especially in those comments she makes on her feelings (e.g., that it's "quite shocking"). But for a story with such evident ambiguities as this one, the initial response of the reader seems to entertain contradictory implications in parallel. Some processing, emergent beyond the 500 msec phase, still captures a fragmentary version of one of the representations and signals the pressure it exerts on the other alternative version. As our reader finishes reading the story and comments on the post-reading questions we asked, she is left with elements of both sides of each of the ambiguities – ideas to which she is committed since the story has grown in part out of the reader's embodied mind and feelings. In particular its ambiguities call into question what innocence might be, both for the child portrayed here and the adult who narrates the story. Through the agency of the absorbed reader the story creates a set of issues involving the characters and what they believe and do. Issues that remain unresolved in this way help create its power as a literary story.

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Chapter 12
A Qualitative Study of Aesthetic Reflection as Embodied Interpretation

Tracie E. Costantino

Abstract In his book, *The Meaning of the Body: The Aesthetics of Human Understanding*, Mark Johnson (The meaning of the body: aesthetics of human understanding. University of Chicago Press, Chicago, 2007) built his case for the importance of aesthetics in a conception of cognition as inherently embodied upon the writings in psychology and philosophy of William James and John Dewey. He devoted significant portions of the early sections of the book to each of these authors, who, with phenomenologist Merleau-Ponty, he has considered critical to the developments in neuroscience that have debunked the Cartesian mind/body dualism. Writing elsewhere, Johnson (Daedalus 135(3):46–54, 2006) asserted, "I regard American pragmatist philosophy, which came to prominence early in the twentieth century, as the most scientifically and philosophically sophisticated naturalistic, non-dualistic approach to mind available to us even today" (p. 48). In this chapter I will focus on Dewey's influence on Johnson's theory of embodied mind as a theoretical framework for a qualitative research study on aesthetic reflection as embodied interpretation.

Keywords Dewey • Qualitative research study • Neuroscience • Aesthetic education • Emotional interaction

Introduction

In his book, *The Meaning of the Body: The Aesthetics of Human Understanding*, Mark Johnson [12] built his case for the importance of aesthetics in a conception of cognition as inherently embodied upon the writings in psychology and philosophy of William James and John Dewey. He devoted significant portions of the early sections of the book to each of these authors who, with phenomenologist Maurice Merleau-Ponty, he considers critical to the developments in neuroscience that have debunked the Cartesian mind/body dualism. Writing elsewhere, Johnson [11]

T.E. Costantino (✉)
Academic Affairs, Rhode Island School of Design, Providence, RI, USA
e-mail: tcostant@risd.edu

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asserted, "I regard American pragmatist philosophy, which came to prominence early in the twentieth century, as the most scientifically and philosophically sophisticated naturalistic, nondualistic approach to mind available to us even today" (p. 48). In this chapter I will focus on Dewey's influence on Johnson's theory of embodied mind as a theoretical framework for a research study on aesthetic reflection as embodied interpretation.

In the beginning chapters of *The Meaning of the Body*, Johnson [12] explicated the significance of Dewey's conceptualization of qualitative thought as an early example of theorizing about embodied cognition. In his later chapter on "Art as an Exemplar of Meaning Making" Johnson drew on Dewey's pragmatist aesthetic theory of art *as* experience (1934), which applies Dewey's earlier writings in psychology on qualitative thought to art making and perceiving. Dewey [7] described qualitative thought in art as thinking in terms of the relation of form and matter within a qualitative whole. He wrote, "the ultimate cause of the union of form and matter in experience is the intimate relation of undergoing and doing in interaction of a live creature with the world of nature and man [*sic*]" (p. 132).

Working in aesthetic education, I have been influenced by Dewey and Johnson in my conceptualization of aesthetic reflection. I define aesthetic reflection[1] as the shaping of media into form with the explicit intention to convey reflective meaning. In the realm I work, the reflective meaning is an interpretive response to aesthetic encounters that are often situated within an educative context, whether it is in a museum, gallery, viewing works *in situ*, or in an art classroom. Johnson's emphasis on the relevance of aesthetic experience for cognition—the holistic embodiment of sensorimotor, psychological, emotional interaction with the physical and social environment—undergirds my conceptualization of aesthetic reflection. In aesthetic reflection, a person's body-mind is engaged in putting into aesthetic form his or her interpretive meanings of aesthetic encounters. Within an educational context, the viewer is being asked to aesthetically reflect on his or her meaning making explicitly, to pay attention to the interpretive process and represent his or her eventual understandings of an aesthetic encounter.

In this chapter I will present findings from a small qualitative study of college students' aesthetic reflections on their aesthetic encounters while studying abroad in Italy. These students were attending a class on interpretation and aesthetic understanding, thereby requiring them to think metacognitively about their interpretive experiences with works of art. The three participants in this qualitative study kept visual/verbal journals containing aesthetic reflections that I analyze using a hermeneutic lens. Their aesthetic reflections provide insight into the interpretive process and how it is essentially embodied.

[1] My use of the term differs from that of Immanuel Kant in his C*ritique of Judgment*, in that I am concerned with the reflection that occurs in the process of interpretive visual response, while Kant was referring solely to the contemplation of aesthetic objects.

Aesthetic Reflection as Embodied Interpretation

Figure 12.1 diagrams the theoretical influences from which I have developed the construct of aesthetic reflection. While in this chapter I am focusing on Dewey and Johnson, Merleau-Ponty's embodiment phenomenology, and especially his writings on aesthetic expression as a coming into meaning (The original was published in 1945; the English translation in 1962 [13]), and Damasio's research on the role of emotion in cognition (e.g., 1994), have contributed to Johnson's emphasis on the critical role emotion plays in the aesthetics of human understanding. Damasio's research on emotion underlies Johnson's defense of aesthetics as foundational for human meaning making, as it is an exemplar of the research in the cognitive sciences conducted since the cognitive revolution that finally debunked the Cartesian mind/body dualism (in his 2007 book Johnson cited all of Damasio's books published up to that point). Damasio's conceptualization of emotional thought (articulated with Immordino-Yang [10]), as a term for "the large overlap between cognition and emotion…in processes of learning, memory, and decision making" (p. 8) also aligns with Dewey's conceptualization of qualitative thought. That is, "it may be said that common-sense thinking, that concerned with action and its consequences, whether undergone in enjoyment or suffering, is qualitative" ([8], p. 243).

Qualitative thought is an underlying pervasive logic that integrates and unifies the distinctions and characteristics of experience. Dewey emphasized the importance of acknowledging the situatedness of qualitative thought, as embedded in experience:

> The special point made is that the selective determination and relation of objects in thought is controlled by reference to a situation—to that which is constituted by a pervasive and internally integrating quality, so that failure to acknowledge the situation leaves, in the end, the logical force of objects and their relations inexplicable. (1930/1984, p. 246)

This quote suggests the importance of reflection in acknowledging the significance of a situation. Dewey explained that qualitative thought is an associative process in which significant relationships are intuitively grasped in an experience "…the immediate existence of quality, and of dominant and pervasive quality, is the

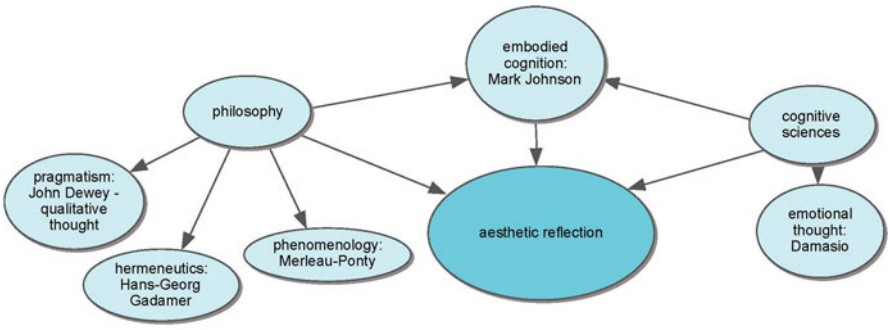

Fig. 12.1 Conceptual framework for aesthetic reflection

background, the point of departure, and the regulative principle of all thinking" (p. 261). Upon reflection, this qualitative thinking forms connections that may be analogic, metaphoric, or propositional. Dewey described artistic thinking as an exemplar of qualitative thought. "The logic of artistic construction and esthetic appreciation is peculiarly significant because they exemplify in accentuated and purified form the control of selection of detail and of mode of relation, or integration, by a qualitative whole" (p. 251).

This relates to Johnson's naturalist theory of meaning, explained in the first section on bodily meaning and felt sense in his 2007 book, "Sometimes our meanings are conceptually and propositionally coded, but that is merely the more conscious, selective dimension of a vast, continuous process of immanent meanings that involve structures, patterns, qualities, feelings, and emotions" (p. 10). Importantly for Dewey, Merleau-Ponty, and Johnson, these meanings are generated through action, the sensorimotor and perceptual interaction of an organism with its environment. It is what Dewey called a transactional realism, "The interaction—or as he later would call it *trans*action—of organism and environment is an active, adaptive, and adjustive process in which the organism seeks to maintain a dynamic balance with its ever-changing environment" ([3], p. 10). Johnson builds on Dewey (and Merleau-Ponty) in his explanation:

> An embodied view of meaning looks for the origins and structures of meaning in the organic activities of embodied creatures to interact with their changing environments. It sees meaning and all our higher functioning as growing out of and shaped by our abilities to perceive things, manipulate objects, move our bodies in space, and evaluate our situation. (2007, p. 11)

Dewey's idea of transactional realism and Johnson's explanation of embodied meaning are especially relevant to the adaptive requirements of a study abroad experience, as students' body-minds are adjusting to the different sights, sounds, smells, tastes, terrain, and knowledge (cultural, especially) they are bombarded with on a daily basis. The *trans*action of the aesthetic reflection process—the impulsion to artistically reflect on a qualitative intuition of a significant situation—may be considered a vehicle for making meaning of the experience. Johnson emphasized, "Since much of art makes meaning without words or linguistic symbols, art reminds us that meaning is not the exclusive purview of language. Indeed, linguistic meaning is parasitic on the primordial structures and processes of embodied interaction, quality, and feeling" (2007, p. 218).

As with any work of art, the value of aesthetic reflection is the potential insight that may be gained by the artist and the viewer. As Gadamer asserted, "Our experience of the aesthetic too is a mode of self-understanding. Self-understanding always occurs through understanding something other than the self, and includes the unity and integrity of the other" (1960/2000, p. 97). Although Gadamer insisted on the lingusiticality of understanding, Johnson brings Gadamer's treatment of aesthetic experience in the seminal work *Truth and Method* into his argument for the inherent aesthetic nature of meaning-making and its grounding in experience:

> The aesthetic experience is not just one kind of experience among others, but represents the essence of experience itself…In the experience of art there is present a fullness of meaning which belongs not only to this particular content or object but rather stands for the meaningful whole of life…The work of art is understood as perfecting of the symbolic representation of life, towards which every experience tends. (Gadamer 1960/75 as cited in Johnson [12], p. 213)

Therefore, the process of aesthetic reflection in the context of a study abroad experience focused on visual arts education may be considered an effective vehicle for students' meaning making and self-understanding in what is typically a transformative educational experience.

Research Context

The context for this research study was a study abroad program located in Cortona, Italy, sponsored by an American university. This program is unique amongst the many study abroad programs in Italy as its focus is on postsecondary visual arts education. One Italian art history course is a requirement during the program, but the majority of course credits come from the studio arts. The program has a residential campus in Cortona, Italy with extensive studio facilities supporting study in diverse two-dimensional and three-dimensional art media, including painting, drawing, printmaking, book and paper arts, photography, sculpture, ceramics, and jewelry and metals. In the spring semester, art education is offered with teaching practicums in the local elementary and middle schools of Cortona. In addition to the 2-month stay in Cortona, during the spring semester program, students spend several days each in Rome, Florence, and Venice, and take weekly field trips on Saturdays to sites in Tuscany and Umbria. With the focus on studio arts in this program, and direct encounters with works of art *in situ* and in regional museums, aesthetic reflection is an effective mediating tool for authentic engagement in the art education course in which data collection occurred.

The course, *Art Criticism and Aesthetic Understanding*, is designed to provide students with the rationale and methodology for teaching art criticism and fostering aesthetic understanding in K-12 educational settings, museums, and other community settings. Aesthetic understanding is the ability to interpret and construct meaning from works of art of diverse genres and cultures, both familiar and unknown. The course combines viewing works of art with discussions of art history, criticism and aesthetics. When taught on the study abroad program in Cortona, content focuses upon modern and contemporary art in dialogue with the history of art as experienced in Italy. Experiences are scheduled to allow students to apply class discussions to school, museum, and other community settings, including a teaching practicum at the middle school in Cortona. By the end of the semester, each student should have developed a sound philosophy regarding teaching art criticism and fostering aesthetic understanding in students, developed additional teaching skills and sequential instructional approaches appropriate for teaching art criticism, gained

additional proficiency in personal knowledge of art history, art criticism and aesthetics as those disciplines pertain to the teaching of art, and developed greater skills in responding to art both orally and in written and visual forms.

Keeping a visual journal is a course requirement, albeit open ended. Students are given specific prompts to respond to, as well as asked to visually and verbally reflect on their aesthetic encounters throughout the program. These aesthetic encounters do not have to be exclusively related to works of art, or students' studio practice, but may also be in response to the natural and social environment. An example of a specific prompt is when visiting the frescoes by Signorelli in the cathedral of Orvieto, students were asked to make notes and sketches in their visual journal imagining they were Michelangelo, who visited these frescoes and was likely influenced by them before painting the Sistine Chapel. In addition, we frequently discussed students' aesthetic reflections (which were typically created in their visual journal) in class in a dialogic manner using Barrett's approach of reflecting, wondering, and responding [1]. My analysis of the students' aesthetic reflections is necessarily influenced by these discussions.

Research Design

This chapter discusses findings from a subsection of a larger qualitative research study that entails both theory development and empirical investigation of the construct of aesthetic reflection as a form of embodied cognition as manifested in visual artifacts produced within the praxis of art education. Based on findings from an earlier study on the potential insight that may be gained through visual responses to works of art [5], for several years I have incorporated methods of visual response into my teaching, asking students to represent their understanding of content and reflect on their teaching practice through visual representation in a variety of forms, including developing visual metaphors of a concept, creating postcards communicating significant learning incidents, pre and post-course drawing prompts, and keeping a visual journal. I have often used these strategies as a form of authentic informal performance assessment, as the reflective quality of the strategies facilitates students' further understanding of a concept or experience.

In this study I am working within a practitioner research methodology related to the scholarship of teaching and learning (SOTL), which is defined as "higher education faculty across disciplines who were engaged in sustained inquiry into their teaching practices and their students' learning" ([4], p. 40). This study reflects practitioner inquiry as I am both practitioner—course instructor—and researcher, the professional context is also the research site, the boundaries between inquiry and practice are blurred, and I am systematically collecting and analyzing data as in an empirical inquiry [4]. With the above discussion of the theoretical framework for this study reflecting a naturalist view of meaning, and aesthetic reflection as an example of this kind of transactional meaning making, the methodology for this study necessarily reflects a pragmatic paradigm [3], with methodology referring to

the epistemology through which one conceptualizes the nature of inquiry in a particular research context.

The main research question for the larger study is to understand how aesthetic reflection is valuable as an educational process that supports the reflective and metacognitive aspects of learning through embodied cognition. In this subset of the larger study, within the context of a course on art criticism and aesthetic understanding, I am especially seeking to understand how the process of aesthetic reflection in a visual journal may facilitate the interpretive process.

Participants

Participants for the study consisted of the three students enrolled in the course during the semester in which the study was conducted. Class sizes are typically small during the spring semester of this study abroad program, which allows for a more intensive seminar experience and flexibility as to where class can occur, with the class often meeting at different architectural and museum sites in Cortona in order to take advantage of the opportunity for direct aesthetic encounters as opposed to always being in the classroom viewing projected images. Two of the students (Joseph and Caroline[2]) were art education graduate students earning master's degrees, while the third student, Eva, was an undergraduate student studying sociology and art history. While this course was the first time I had met Eva, both Joseph and Caroline had been students in several of my courses prior to this semester. Both of the graduate students were also practicing artists, working comfortably in two-dimensional media as well as ceramics, while Eva's arts practice fell mostly within photography. Joseph and Caroline were already in the daily habit of keeping a sketchbook, journal, or visual journal, while this was the first time Eva had consistently reflected in a sketchbook or visual journal, accordingly she had some anxiety about producing reflections in visual form.

Data Collection and Analysis

Visual journal entries from all three participants were the primary form of data as the focus of this study was to explore the potential of the visual journal as a form of aesthetic reflection on the interpretive process. Specifically, there were a total of 111 pages of entries (Joseph n = 31; Caroline n = 46; Eva n = 34). Each student's visual journal was analyzed individually, with emergent themes identified, and then compared across cases for insights regarding the value of aesthetic reflection as a form of embodied interpretation.

[2] Pseudonyms are used to ensure confidentiality.

My analysis of artifacts of aesthetic reflection relies on the visual analysis and study of iconography typical in art historical inquiry [2], as well as approaches to art criticism that incorporate personal response [1]. Since my data analysis task may also be considered an interpretation of students' interpretive experiences during aesthetic encounters, as represented in visual-verbal texts, it is also essentially hermeneutic, as my analytic process moves in a whole-parts-whole cycle. I assessed the credibility of my interpretations through member checking with the participants.

While Dewey and Johnson provide the main theoretical contribution to build a case for the non-verbal nature of understanding that challenges the hermeneutic insistence on the linguisticality of understanding [9]—consider the title of Johnson's introduction to his book (2007) "Meaning is more than Words and Deeper than Concepts"—why bring in hermeneutics at all? In addition to Johnson's incorporation of Gadamer's theory of aesthetic experience as inherently meaningful, as a practitioner researcher, my project is essentially interpretive as I seek to understand my students' visual/verbal interpretations. My position as practitioner researcher also significantly informs my analysis from a hermeneutic perspective as my interpretations are situated within the horizons of my experience as an instructor on this program with these students. It follows that however I may interpret my students' meaning making via qualitative thought, I then need to translate this into language as a researcher sharing my findings. Therefore, both visual understanding and verbal articulation is needed, but working in collaboration, as is often seen in the visual journal aesthetic reflection entries. Indeed, this is the case Biesta and Burbules [3] make for the relevance of Dewey's pragmatism as a methodology for educational research: it is the interaction and reciprocal relationship of different modes of experience that constitute the inquiry process.

Interpreting Aesthetic Reflection as Embodied Interpretation

As Johnson did in his chapter on "Art as an Exemplar of Meaning-making", providing "exemplary cases that show how the structures, processes, and qualities that make art possible and valuable are exactly the same ones that constitute *all* meaning, thought, and understanding" (2007, p. 213), I will provide exemplary cases of aesthetic reflection from each participant for discussion. Guiding this discussion is the idea that the felt material of experience provides the qualitative substance for the form of expression in aesthetic reflection. According to Dewey, it is esthetic emotion that unifies *an* experience as an aesthetic experience: "Emotion is the moving and cementing force. It selects what is congruous and dyes what is selected with its color, thereby giving qualitative unity to materials externally disparate and dissimilar" (1934, p. 42). That is, the formal elements of participants' reflections—their use of color, line, shape, etc.—in a unified composition convey the meaning of their experience.

Eva – Embodying Wonder

In her closing reflection on the course represented by a two-page spread in her visual journal, Eva wrote about how she realized the importance of wonder when looking at a work of art. During the course we discussed the role of wonder prompted by two readings [1, 6], which may have facilitated Eva's articulation of wonder as an important emotion in her aesthetic encounters during the program. Even though not explicitly stated, wonder is salient even in Eva's earliest aesthetic reflections as she recalls her excitement upon arrival at the Rome airport, but especially in an entry of two days later reflecting on her visit to the Galleria Borghese and surrounding gardens. Amidst the unfamiliarity and anxiety of finding one's way around Rome, Eva wrote about the awe she felt walking through the gardens as she approached the Galleria Borghese, and especially upon her encounters with the Bernini sculptures in the collection.

But let me first begin with a general description of Eva's visual journal entries. It is important to note that the first entries in Eva's journal were created several days into the program, once the visual journal had been assigned, and hence were created retroactively to document her experiences in Rome. Eva's entries begin with the text dominating, whether in the form of prose, or as main elements of the composition, playing with the color, size and shape of letters often spelling out the names of cities, such as Rome or Pisa. For example, the very first entry gives the airport abbreviation of her departing city, using the colors and symbols of the American flag (red, white, stars) to decorate the large letters, and those of the arrival city, Rome, depicted in red, green, and white. Use of these cultural signifiers implies the significance of the travel itself and all the accompanying anticipation, especially on a study abroad program where a student is leaving the familiarity of home to live for several months in a different country.

In the early entries, Eva used a stick figure to represent herself with the only distinguishing attribute being curving lines to represent her long hair. Visual elements are added to subsequent pages in scrapbook fashion, including ticket stubs, subway passes, or other items of special significance, such as Kinderegg wrappers (an entire entry is devoted to these chocolate treats). However, as the semester progressed and Eva became immersed in her photography classes and daily interactions with fellow art students, including her classmates in this course with more experience using a visual journal, Eva's aesthetic reflections became much more visual, artistic, and experimental, employing mixed media (drawing, photography, collage elements) with reflective text incorporated into the composition. The compositions become layered and more ambiguous, and her self-portrait moved away from the stick figure to a more fully drawn figure.

In the exemplar of aesthetic reflection for Eva (Fig. 12.2), we see her experimentation in how she rips and then juxtaposes strips of black and white photographs (a combination of her own and those of another student) to make what might be considered a symbolic portrait collage, with the reflective writing occupying almost half of the composition space. It is symbolic in that the various visual objects

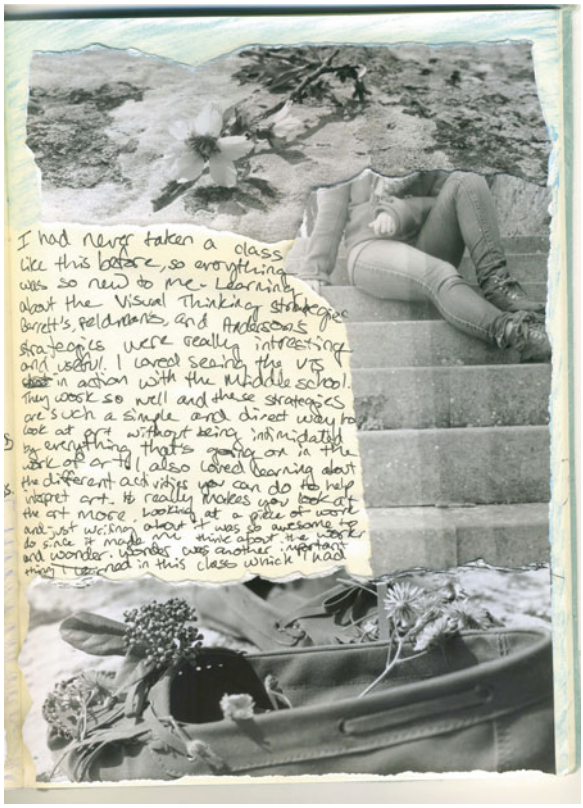

Fig. 12.2 Final aesthetic reflection entry by Eva

represent meaningful experiences for Eva during her stay in Cortona. The composition is vertical, with the viewer's eye descending down the stairs upon which the figure is seated. It is meaningful that Eva chose to put a figure seated on stairs as the central image. The central piazza in Cortona houses the city hall that is reached by a central staircase, a favorite gathering spot for students and community members. Students often meet on the stairs for lunch or a snack, eating panini from the local grocer or gelato in the late afternoon. At both the top and base of the composition are ripped strips of photographs incorporating recently bloomed spring flowers that are interrelated with the figure—at the top they take the place of the head, and at the bottom of the composition they are interwoven into shoes. This study occurred in the spring semester of the program, with students residing from mid-February to late-April in Cortona. During these months students experienced the change of seasons from a cold, wet winter to welcome spring with the blossoming of almond trees, the blooming of wisteria, and warmer weather that might encourage a casting off of shoes. Indeed the blossoms in the top strip are from the early blooming almond trees plucked and laid on the stonewall of a Franciscan monastery that was a favorite peaceful spot students would often visit during long walks outside of the

city walls. The flowers in the shoes at the base of the composition may represent a memory from a Saturday field trip, or lounging in the shady yard surrounding the building in which studio classes occurred. In a sense this aesthetic reflection represents the merging of aesthetic experience with art and nature that is so characteristic of travel in Italy. In this closing reflection, Eva has created a representation of her embodied encounters with the environment, both cultural and natural, through her preferred medium of visual expression—photography—choosing to highlight the emotional meaning of wonderment in her experience.

Joseph – Visual Journaling as Aesthetic Experience

During this study, Joseph was a graduate student earning his master's degree in art education. He was focusing his master's degree final project on studying the visual journal as an act of *currere*, or curriculum as autobiographical inquiry. He came to this topic after his experience using the visual journal in art education courses, and especially during the study abroad program. He considers visual journaling an artistic practice and form of living inquiry, akin to arts-based research. With his engagement in journaling as a daily practice, he has developed a style that is evident in the majority of his reflective entries. The focus of the reflection is represented visually as one or more drawn images—typically in ink—placed sometimes roughly in the center of the page, other times asymmetrically or along the periphery. Winding around the image(s) are Joseph's written reflective thoughts, which travel around the page leaving no spaces uncovered as his thoughts unfold (see Fig. 12.3). In this way language is integrated qualitatively into the composition, intuitively and rhythmically laid down so that the reader must physically interact with the page, either turning one's head or the journal around to follow the stream of Joseph's reflection on his experience. The writing becomes a form itself, often creating a bridge of interaction amongst the images. It is as if the creating of the aesthetic reflection, or act of visual journaling, is an aesthetic experience for Joseph, as Dewey [7] described art practice with the rhythmic doing and undergoing of perceptions of relationships of qualities: "the esthetic experience—in its limited sense—is thus seen to be inherently connected with the experience of making" (p. 49).

Joseph's aesthetic reflections on course content, often in response to a specific prompt, are more dominantly visual, often utilizing visual metaphors, with text serving as a signifier to a specific concept. For example, for the midterm for the course, students were required to write a paper comparing a work of Italian premodern art with a contemporary artist. Two years prior Joseph had visited the Accademia in Florence, where Michelangelo's sculpture of David is on view. During the time of his visit there was also a retrospective exhibition of the photographs of twentieth century American artist Robert Mapplethorpe, including an installation of Mapplethorpe's photographs of male nude figures surrounding the statue of David. At the time, Joseph was dismayed that his first visit to see the David was interrupted by this photography installation. In the course during the study

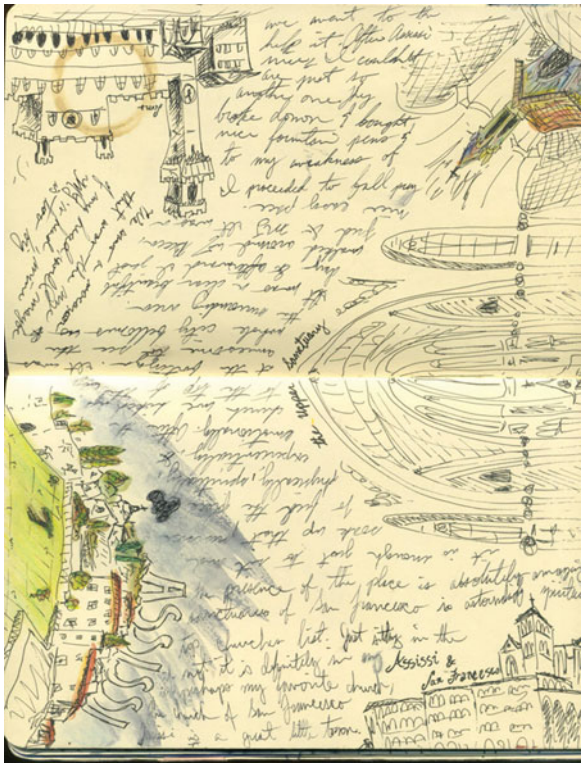

Fig. 12.3 Reflective journal entry by Joseph

abroad program two years later, with a focus on aesthetic awareness and interpretation, Joseph revisited his experience with this exhibition for his midterm paper. During his midterm presentation of the paper, Joseph asked the class to do a quick visual response to the installation as a form of interpretation. He then shared the aesthetic reflection of the David he had constructed for the presentation to demonstrate the influence of his reflection on his prior experience of viewing the David surrounded by photographs by Mapplethorpe (Fig. 12.4).

Titling his paper "The Stone or the Shutter," Joseph sought to compare not only the media these two artists worked in, but also to query about the juxtaposition and interrelationship of these artists in the installation. During his presentation and in his paper, Joseph discussed his interpretation of Michelangelo's and Mapplethorpe's use of light to objectify the male form and how Mapplethorpe's photographs give the figures a sculptural quality. He used the term exploitation often, which is qualitatively conveyed in his drawing with the spotlighting of the figures against a dark background that is aggressively blocked out with wide strokes of black (there was no such background in the actual installation). The torso of David is given prominence with exaggerated breadth, which is further enhanced in comparison with the miniature size of the head. The figure of David also looms over the crouching figures in Mapplethorpe's photographs installed alongside the statue's base. In this way,

Fig. 12.4 Aesthetic reflection by Joseph on exhibition installation viewed two years prior

through his aesthetic reflection on the installation Joseph conveys his emphasis on exploitation in his interpretation of these artists' treatment of the male form. This visual representation of his interpretation powerfully conveys the significance of this aesthetic encounter for Joseph.

Caroline – Drawing on Qualitative Thinking

Like Joseph, during the program Caroline was a graduate student with a daily habit of journaling, especially utilizing the visual-textual integration of a visual journal. She was also accustomed to keeping a visual journal as a course requirement. In her journal Caroline's reflective writing and drawings are integrated within a composition or page spread in an organized and easy to follow manner. Often Caroline covers a page with fully rendered drawings, and then writes her reflections on a separate page, or she overlaps drawn images onto printed text that still remains legible. In other instances she might clearly position descriptive text in reference to an image. Caroline is accomplished in drawing, and it is evident that this is a productive mode of expression for her, as hers is the most consistently predominantly visual of the aesthetic reflection entries of all three participants. She often chose to depict her

Fig. 12.5 Example of aesthetic reflection by Caroline

various experiences of a place through a visual compilation of drawn images (and sometimes photographs and collaged printed images), including, for example, encounters with works of art, an especially delicious meal, and a beautiful landscape view (Fig. 12.5). Indeed these are all sources of aesthetic experiences for which Italy is beloved. Caroline also typically created aesthetic reflections during class while engaged in discussion; there are numerous entries with key ideas written out alongside drawings of images we were viewing in class. Her comments during class discussion when we were interpreting an image were often focused on the formal elements of an artwork, indicating her predisposition for an aesthetic mode of thinking [7].

This is especially evident in a visual journal entry Caroline composed in response to a prompt I gave for students to visually reflect on a principle of interpretation laid out by Barrett in his book *Interpreting Art* (2002), which we used as a text for the course. The principle Caroline chose is "feelings are guides for interpretation". In Fig. 12.6 Caroline created a composition composed of lines seeming to move from the left to the right side of the page. The lines branch out, as if feeling their way as they are drawn across the page. This is a good example of Dewey's [7] description of material expressed into form to convey meaning, as the dynamic quality of the line seems to travel across the landscape of the page. This interpretation is enforced when compared with an earlier aesthetic reflection Caroline made upon the beauty of the valley surrounding the city of Cortona (Fig. 12.7). In this image Caroline's

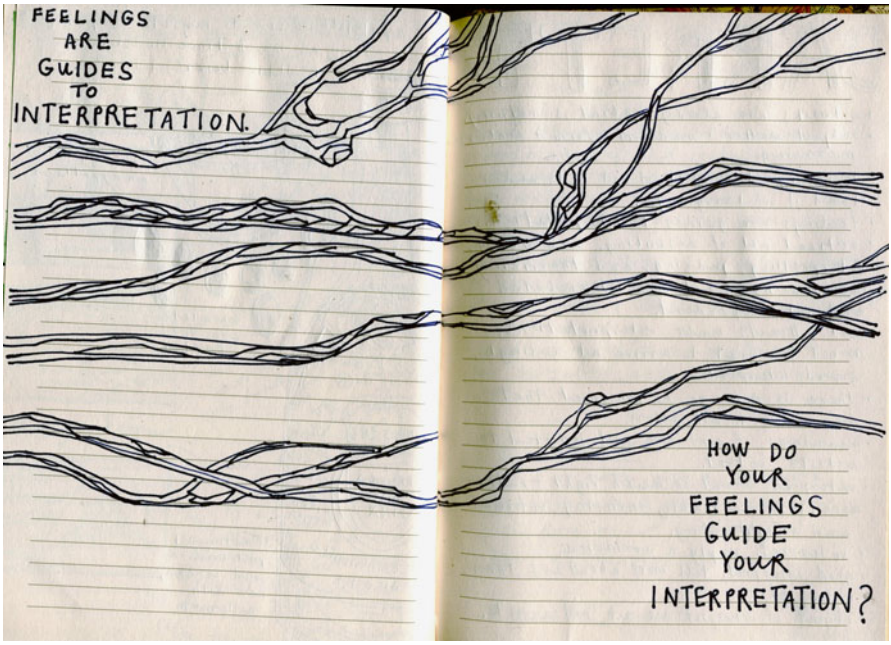

Fig. 12.6 Aesthetic reflection by Caroline on feelings as guides to interpretation

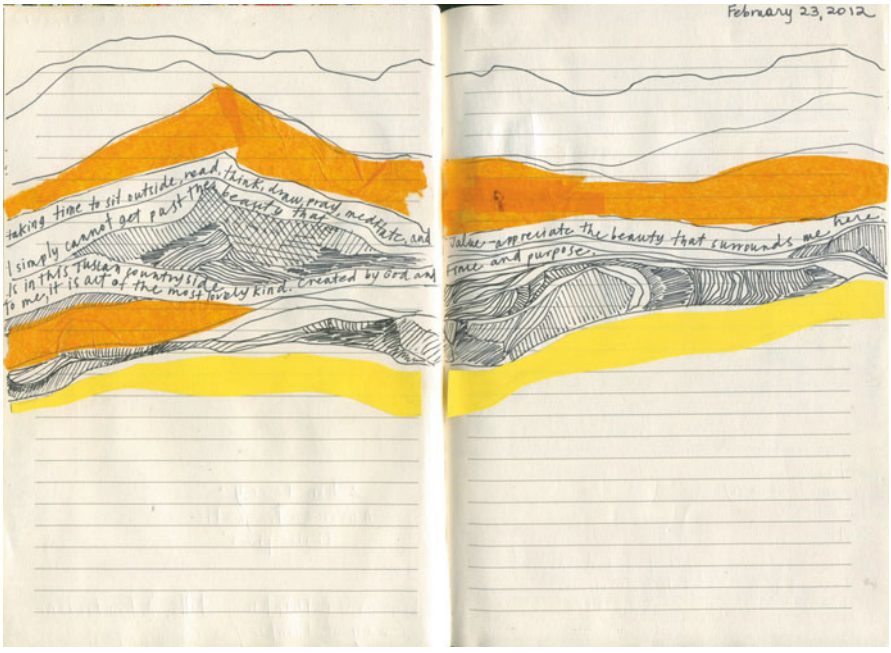

Fig. 12.7 Aesthetic reflection on landscape by Caroline

verbal reflection climbs along the hills of the panorama and the layers of collaged paper and drawing convey her wonder at the geological age of the strata she contemplates. When we discussed in class her entry about feelings as guides to interpretation (Fig. 12.6) I shared how it reminded me of this earlier entry on the landscape. In this way, the sharing of and dialogue about aesthetic reflections can be a critical aspect of the meaning making process. Through our discussion the significance of Caroline's aesthetic engagement with the landscape around Cortona as an essentially meaningful aspect of her experience became explicit. As Johnson asserted, "Via the aesthetics of our bodily senses, the environment enters into the very shape of our thought, sculpting our most abstract reasoning out of our embodied interactions with the world" (2007, p. 154).

Conclusion

As revealed in the above discussion, aesthetic reflection presents itself as a vehicle for the expression of meaning generated in aesthetic experience as well as a manifestation of the actual interpretive process. We see this especially in Joseph's reflections as the rhythmic interactions of written reflection with images symbolic of aesthetic encounters carry him to understandings as he moves his hand across and around the page. For Eva, the requirement of keeping a visual journal encouraged her to recognize and tap into a form of visual expression—the medium of photography—that she already utilized, but now as a lens through with she aesthetically reflected and composed meaningful views of her experience. For Caroline, the opportunity to use drawing as a means of pouring out a cascade of images symbolic of meaningful experiences while studying abroad, and the reflective dialogue around those images, aided in her interpretation of the significance of those experiences.

The theorization of embodied cognition put forth by Dewey and Johnson has guided my understanding of how the *act* of aesthetic reflection in education—the *trans*active practice of reflecting upon an immanently qualitative meaning then manifested through aesthetic articulation—is an interpretive practice that is meaningful for the viewer as well as the creator. While I checked my interpretations with the participants, there are multiple meanings that may be constructed, each inherently situated in the perspective of the interpreter, and also in relational dialogue, so that interpretations are dynamic and potentially meaningfully different with subsequent engagement. While this may seem relativistic, it is instead reflective of the interactive and constructive nature of our understanding of our experiences that is generated through body-mind engagement with our environment. It also reflects the ongoing rewards of revisiting our experiences through aesthetic reflection.

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Part V
Radicalizing the Anti-Cartesian View: Enactivism in Aesthetics

Chapter 13
Enactive Aesthetics: Philosophical Reflections on Artful Minds

Daniel D. Hutto

Abstract The arrival of embodied, enactive and extended accounts of minds has sparked interest in how such new thinking about minds might influence and reshape our thinking about the production and appreciation of art. This paper clarifies why radically enactive approaches to aesthetics ought to be favoured. This is achieved in three stages. First, a properly enactive vision of aesthetics is distinguished from weaker, embodied and extended accounts of art. The latter are shown to be compatible with the strongest and most ambitious versions of internalism about artful minds (section "More than Embodied and Extended Artful Minds"). Second, the commitments of ambitious versions of neuroaesthetics – theories that attempt to understand artful minds as wholly internal and neurally based – are examined. It is revealed that ambitious neuroaesthetic theories, those that endorse the representational theory of mind and essentialism about art, are incompatible with a radically enactive aesthetics (section "Neuroaesthetics"). Third, an analysis is provided to show how commitment to representationalism of a Cartesian stripe is the true source of the internalist and disembodied vision of artful minds promoted by ambitious neuroaesthetic theories (section "Essentially Disembodied Minds"). Finally, readers are directed to general arguments – provided in other works – for favouring the anti-representationalist radical enactivism over the theories of mind assumed by ambitious neuroaesthetic theories (section "Radically Enactive Aesthetics").

Keywords Enactive aesthetics • Radical enactivism • Internalism • Neuroaesthetic theories • Anti-representationalism

More than Embodied and Extended Artful Minds

Despite sharing common sympathies not every embodied or extended account of mind qualifies as a properly enactive account. A quick review of some recent embodied and extended proposals about aesthetics suffices to make this evident.

D.D. Hutto (✉)
School of Humanities and Social Inquiry, University of Wollongong, Wollongong, Australia
e-mail: ddhutto@uow.edu.au

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Prominent friends of embodiment, for instance Shusterman [36], object to the way in which "philosophy's dominant idealism and rationalism largely marginalize the body in aesthetics" (p. 19). The somaesthetic enterprise was launched in a bid to address this problem. Its chief aim is to ensure that the body becomes the beating heart of philosophical work on aesthetics. Exactly which notion of 'the body' is at play in Shusterman's thinking?[1] Taking his lead from the phenomenological tradition, a major part of his project is to combat the confusion – prevalent in analytic philosophical circles – of assuming that the body is inanimate, lifeless, mechanical and corpse-like when not directed by the mind. To underscore this Shusterman explicates his understanding of 'the body' by invoking the Greek notion of 'soma'. This move is meant to draw attention to the fact that the body he is referring to is "the living, sentient, purposive body – as the indispensable medium for all perception" (ibid, p. 3). When thinking of 'soma' he asks us to attend to:

> its richly intricate variety of body parts, systems, senses, feelings, motor schemata, and habits of action; its different modes of experience, consciousness, and knowledge that are differently shaped by both nature and culture (ibid, p. 16).

For Shusterman it is not just standard thinking about 'the body' that must change. He hopes to get us to rethink our philosophical task along with that shift of stance. Thus the somatic notion of the body informs and drives his pragmatist mission of attempting to revive the venerable idea of philosophy as an "embodied way of life rather than a mere discursive field of abstract theory" (ibid, p. 3). In attempting to reinvigorate the idea of philosophy as an art of living, Shusterman places great stress on the need to reflect on our somatic capacities, both practically and theoretically. This is in order to improve both the human sciences and to extend our lived possibilities for engaging with artworks. He maintains that, in very large part, making such improvements requires increasing "our powers of awareness, focus, and feeling through better mastery of their somatic source" (ibid, p. 3). Somaesthetics is thus centrally concerned with "the body as a locus of sensory-aesthetic appreciation (aesthesis) and creative self-fashioning" (ibid, p. 27).

There is some link to enactivist thinking about the embodied mind in the focus on "the sentient lived body rather than merely a physical body" (ibid, p. 5). The soma is understood as a 'subjectivity' that perceives artistic qualities and that experiences aesthetic pleasures. It is useful to compare this approach with Vischer's [38] view that the whole body is engaged in acts of aesthetic appreciation. For Vischer emphasized the notion of active looking over that of passive seeing, stressing that art forms "aroused particular responsive feelings, depending on the conformity of forms to the design and function of the muscles of the body, from those of the eyes to our limbs and to our bodily posture as a whole" ([16], p. 688).

There is an even stronger commitment to enactivism driving Shusterman's primary ambition to establish the body's active role in "immediate, nondiscursive

[1] One thing Shusterman makes clear is that he wishes to avoid promoting a "dangerous essentialism or uniformity about our embodiment, as if we are dealing with only one single thing – 'the body' – rather than doing justice to the diversity of our bodies (in terms of gender, age, and ethnicity, for example)" ([36], p. 5).

understanding and pleasures in order to challenge the hermeneutic hegemony that confined legitimate aesthetic appreciation to intellectual interpretation" ([36], p. 14, emphasis added). This embodied form of understanding, he proposes, lies beneath and makes possible more linguistically grounded modes of thought and cognition. To accept this requires taking seriously the idea of the "body as a site of active perception and subjectivity" (ibid, p. 5).

Not only are these ideas compatible with core ideas found in enactive thinking about basic minds, they imply them. Unsurprisingly, in line with this Shusterman rejects the widespread assumption that minds are essentially disembodied. He openly sets his face firmly against the Cartesian-style thinking that lurks in "our culture's deeply entrenched body/mind dualism" (ibid, p. 5). It is the Cartesian conception of mind that is responsible for making it popular to view the body as "mere material mass and mindlessness, which makes "philosophy of body" seem a contrast to philosophy of mind" (ibid, p. 5). Shusterman's diagnosis is that it is precisely because philosophers have failed to get beyond Cartesianism that they "generally disregard the body's broader aesthetic importance, conceiving it as … a mere physical object for artistic representation or a mere instrument for artistic production" (ibid, p. 1).

Yet, shockingly, for all of this, Shusterman makes claims that are wholly compatible with the acceptance of a Cartesian-inspired view of mind as essentially disembodied. He tells, for example, that:

> We think and feel with our bodies, especially with the body parts that constitute the brain and nervous system. Our bodies are likewise affected by mental life, as when certain thoughts bring a blush to the cheek (ibid, p. 27).

No one, not even the most ardent Cartesian, denies perceiving depends on contingent facts about bodies and the way they are used. Bats, dolphins, and rattlesnakes perceive the world differently from each other and from humans. Such differences are explained by their being differently embodied. Similarly, no one denies that what and how we perceive causally depends on what we do. It is only because I move my head and my eyes in certain ways that certain things become visible and audible. This is a very weak notion of embodiment, one that is wholly consistent with neurocentric and disembodied views of the mind.

Elsewhere Shusterman appears to endorse a stronger view of embodiment when he claims that the "body-mind connection is so pervasively intimate that it seems misleading to speak of body and mind as two different, independent entities … [thus] … 'body-mind' would more aptly express their essential union" (ibid, p. 27, emphasis added). Talk of intimate connections and unions suggests the linking together of two logically separate things that are, at best, very tightly coupled. This raises an important question: Might we accept all that Shusterman says about the importance of the body in aesthetics while, nevertheless, endorsing the idea that minds are essentially disembodied? After all, we must not forget that "While Descartes allowed for disembodied minds he never denied the significance of the body for the action of our minds (recall how Descartes denied that we are like pilots in ships)" ([34], p. 3).

Indeed, in other places, Shusterman appears to actively drive us toward acceptance of the disembodied mind, making precisely the sort of claims that have traditionally motivated acceptance of some form of mind/body dualism; for example, he remarks, "Mental life relies on somatic experience and cannot be wholly separated from bodily processes, even if it cannot be wholly reduced to them" ([36], p. 27). The lesson should be clear. If one is to truly oppose Cartesian-inspired mind/body dualism it is not enough only to defend the idea that the body is important to our mental life. Not just any old appeal to the idea of an embodied mind, taken off the shelf, will do for that purpose.

But it is not just that Shusterman's understanding of embodiment is too weak, it also does not go far enough – quite literally. To understand the embodied mind in terms of an experiencing subject where that subjectivity is understood as existing more widely 'within the skin' of the living body and not just the brain would be – at most – a very modest advance on the mind-brain internalism advocated by Cartesians. By focusing too much on the living flesh Shusterman's somaesthetics account is at risk of downplaying the ways in which the production and consumption of art involves active engagement with objects and artifacts over time and the ways that we use our bodies and other features of the environment in such engagements.

There has been a recent cry for a properly situated aesthetics, one that requires recognition that "the relevant facts, processes and properties constituting a mind are not confined to the boundary of the nervous system – that the mind is larger than the body" ([26], p. 4, emphasis added). Accordingly, "Art is beyond the skin… aesthetics can be extended to tools, works of art, ways of handling objects" (ibid, p. 7). How best to understand art through the lens of an externalist take on the mind? The question matters for, as Manzotti observes, there are many varieties of externalism about the mind. There is content externalism, phenomenal externalism, active or 'vehicle' externalism, and explanatory externalism. These are not all of a piece; they neither reduce to one another, nor are they readily interchangeable. Worse, without supplement, none of these externalist accounts of the mind has the resources to resist the idea that minds are essentially disembodied. All of their core claims can be accepted while holding firmly to that view. It is beyond the scope of this paper to demonstrate the truth of this for each brand of externalism mentioned above. Instead of attempting that I will focus on perhaps the most promising and thus illustrative case, allowing the reader to apply the basic logic, mutatis mutandis, to the other varieties of externalism to test the premise.

Focusing on active and explanatory forms of externalism about the mind, Myin and Veldeman [30] argue for an understanding of art that regards it as going beyond the skin. These authors hold that both the production and appreciation of art are best understood along externalist lines, indeed that such phenomena 'cry out' for such treatment. Given that my interest is ultimately, like Shusterman's, to defend the possibility of a non-discursive form of embodied cognition, I will focus on what Myin and Veldeman have to say about active externalism and their reasons for thinking

that it provides the basis for arguing that art should be "seen as essentially world-involving" (Myin and Veldeman [30], p. 38, emphasis added).[2]

Drawing inspiration from the extended mind thesis of Clark and Chalmers [5], Myin and Veldeman draw attention to the fact that the cognitive activity required for producing and consuming art cannot occur without active engagement with external items. In support of this they highlight, for example, empirical findings of van Leeuwen et al. [37] on the role of sketchpads in the production of certain forms of abstract art. The use of sketchpads is required because it is not possible to hold multiple and competing interpretations of images in the mind simultaneously [2]. One cannot see the duck/rabbit both as a duck and a rabbit at the same time. Hence, the creation of some complex artworks that play with such images is "essentially dependent on the use of external sketches" (Myin and Veldeman [30], p. 41, emphasis added).[3] These authors point to a wide range of other episodes "in which the concrete, online interaction between material and artist makes a difference" (ibid, p. 48). These include any in which the work of art constitutively depends upon the specific materials deployed, or the way they are actively manipulated, as well as instances in which a work depends upon entering into a 'confrontational dialogue' with other, already existing works of art. A moment's reflection shows we must grant that reliance on sketchpads is not an isolated case.[4]

In this light it would be hard to deny that the use of external items, props and tools allow for "new forms of artistic creation which would not have existed without them" (ibid, p. 42). This secures the general truth that when it comes to the production of art, whatever we bring to the table in terms of our natural on-board mental equipment, is simply not enough. More is needed for performing the cognitive tasks that enable art production, and that 'more' comes from the wider world.

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[2] It should be noted that Myin and Veldeman, inspired by Hurley [17], argue that a "more encompassing externalism is possible, according to which not only the current but also the past involvement of external elements bestows extended status to cognitive or mental phenomena" (p. 45). That is to say they defend a form of explanatory externalism, according to which what counts as essential to mind will involve external factors just in case such factors are "necessary to explain why the cognitive or mental phenomenon is what it is" (ibid, p. 45). In the case of art this is secured by the fact that "art creation essentially involves both material things as well as a tradition" (ibid, p. 49). This goes far beyond what is given perceptually in the here and now. To use Myin and Veldeman's own example, if "'The Incredulity of Saint Thomas' had not been created in 1601, but in 2010, it would be quite differently appreciated. It is no longer possible to create a baroque masterpiece today" (p. 49). While there is certainly some truth in this, given that my interest in this piece is to establish that art appreciation can occur in a purely non-discursive embodied mode in direct response to perceptual features of artworks I will bracket further discussion of explanatory externalism in what follows.

[3] Here these authors adopt a "metaphysical reading of constitutive … [understanding] 'constitutive' as 'essential' – 'what is needed to make something into what it is'" (Myin and Veldeman [30], p. 47).

[4] Myin and Veldeman [30] cite other convincing instances of the use of tools and artefacts in the history of making art that enabled particular artistic achievements which would have been impossible otherwise. Interested readers are directed to review their discussion of the use of linseed oil paint and Alberti's transparent grid.

We need assume only that minds are extended in Clark and Chalmers's original sense to secure this outcome. Thus the above argument works even if the external factors in question play only a disembodied, purely computational role in enabling the completion of cognitive tasks. Here it is important to note that the extended mind thesis is typically only cast in terms of what Clark [4] calls a 'larger mechanism story' in which "features of the body, of embodied action or of the environment may play an active information-processing role" (p. 39). This is very different from accounts of the embodied mind that seek to tell a 'special contribution story' – viz. one according to which "specific details of human embodiment make a special and … ineliminable contribution to our mental states and properties" (ibid, p. 39).

Myin and Veldeman edge closer to the latter view when they endorse explicitly enactivist assumptions about how we actively appreciate art to further motivate their externalism. Focusing on the purely perceptual aspects of aesthetic appreciation they call on enactive insights about perception, those that entail that art appreciation is world-involving "in an essential, constitutive manner" (Myin and Veldeman [30], p. 43). That conclusion follows from the fact that enactivists assume that "the animal literally sees by acting" (ibid, p. 43); that "vision should be seen as a way of doing something in an environment, as a way of interaction" (ibid, p. 44). On the assumption that perceivers and scenes become 'knit together' through such activity it turns out that there can be no perceiving without an environment to interact with – hence the "environment plays a constitutive role" (ibid, p. 45). Acts of perception in general – on this view – neither occur entirely in the brain, nor even just within the confines of the body. Acts of aesthetic perception are no exception to this rule.

Crucially, the idea that perceptual activity, in general, occurs only in specific brain areas is traded in for the idea that perceiving, in general, involves extended temporal interactions between perceivers and their environments. The same logic applies to audiences and their encounters with works of art. It is this commitment that mandates the idea that the structure and nature of extended space and how we interact with it ought to be of central importance to any future aesthetics, just as might have been anticipated.

Moreover, when externalism is motivated by enactivist accounts of perception then artistic production and appreciation will likewise be conceived of as activity that involves an interaction with the objects and the space in which the artworks are created, presented and performed. Hence, the "pure materiality of the artwork itself, as well as the concrete specifics of the perceptual conditions, have been considered to be necessary factors in coming to properly appreciate art" (Myin and Veldeman [30], p. 48). The point is illustrated by noting that, for example, "Rothko paintings, can never be properly understood without facing the work" (ibid, p. 49). More than this, citing Kindy [24] Myin and Veldeman emphasize how such works are "meant to relate to the body, so that the painting can be "absorbed" by more than the eyes" (ibid, p. 49). This last point serves to show that while enactivism is technically a step beyond somaesthetic approaches that stress the importance of the living, experiencing body, an enactivist aesthetics can retain the idea that our artistic capacities can be developed and improved at least in part by the sorts of ways that Shusterman recommends.

The only fly in the ointment is that, despite appearances, Myin and Veldeman's [30] arguments are wholly compatible with the idea that the mind is essentially disembodied. These authors recognize that parity-based arguments for active externalism – those that try to show that external processes are on a par with internal ones in order to motivate belief in extended minds – are of the wrong sort for their purposes. They favour integrationist ways of motivating belief in the idea that artful minds are extended; arguments of the sort advocated by Menary [27–29]. According to this way of motivating externalism it is held that "exactly when the externally enabled processes are not similar [to those in the head], that they become genuinely valuable" (Myin and Veldeman [30], p. 41). These are cases in which manipulations and dealings with external items transform, augment and make possible novel cognitive practices and activities. Recognizing that parity-based motivations for believing in externalism have serious shortcomings Myin and Veldeman nevertheless hold that "broader, non-parity based, externalism is able to withstand the charge by internalist opponents that it commits a 'coupling constitution fallacy'" (ibid, p. 42). But this is not so.

On its own, integration-based views of the extended mind are not strong enough to secure the idea that external factors are cognitively essential (cf. [19], ch. 7, p. 149). All that Myin and Veldeman argue can be accepted while denying that premise.[5] That is one can cling to the idea that the mind is disembodied while accepting, as a matter of fact: (1) that the skilled bodily activity of working with tools is practically necessary for creating art; (2) that the way audiences use their bodies to engage with individual pieces of art is instrumentally necessary in order for them to appreciate art; and (3) that such appreciation depends critically on the nature of the spaces chosen for presenting and viewing art. All of this can be true and yet these factors might still be merely incidental to aesthetics. They may be contingently practically necessary for enabling and shaping artistic experience, as things stand. They are the only means we happen to have hit upon, so far, for producing and appreciating art to date. But it would be a logical howler to assume that they are essential or necessarily necessary for the occurrence of art per se. Rather, so die-hard internalists will argue, what is really essential for the creation or enjoyment of art is what goes on inside the skulls of individuals.[6]

Adoption of such strong internalism makes philosophical questions about the status of individual pieces of art and whether adept, indiscernible forgeries might

[5] Surprisingly enough, for the reasons cited, it is, technically not the case that "Situated aesthetics is aesthetics dependent on the adoption of externalist ontology of mind" ([26], p. 4). Situated aesthetics is compatible with an internalist conception of the mind. For something stronger what is wanted and required is a thoroughgoing, radically enactive account of extensive, not merely extended minds. For the record, this is something that Myin was aiming to promote even in his co-authored paper with Veldeman but the point comes out most forcefully in his more recent writings (see Hutto and Myin [19], esp. ch 7).

[6] Pepperell [32] provides testimonial evidence that reveals many artists, based on their practice and traditions, are attracted to what he calls an 'externalist-like' understanding of art; "when artists discuss the relationship between the mind and the world, they frequently do so in ways that stress the continuity or interdependence between what's in the head and what's in the world" (p. 110).

count as art in their own right pale into insignificance. If an internalist, disembodied, vision of art is accepted, then artists should be more concerned about their long term future since conceivably both they and their works might be made redundant in future. Potentially they could be replaced, without real loss, by devices enabling direct stimulation of the right neural areas. No matter how far-fetched this might seem right now, presumably engendering genuinely aesthetic experiences by neuroscientific means isn't beyond imagination. Artists and their artworks may be practically necessary for conjuring up aesthetic experiences – as things stand and have stood. But that is just a contingent fact – but if all that is really needed for artistic production and appreciation takes place entirely within the brain then artists and artworks are not logically essential to art, and they never were. So, whether artful minds are essentially internal and disembodied has interesting logical consequences.

Neuroaesthetics

Does anyone today hold such strongly internalist and disembodied views about artful minds?

It has been suggested that proponents of neuroaesthetics do. Manzotti [26] speaks of "a hubris-like overconfidence among … brain scientists confident of the possibility to reduce aesthetics to a sub-field of neuroscience" (p. 10). Likewise Myin and Veldeman [30] hold that their version of externalism about art is a 'non-trivial' thesis precisely because a rival counter thesis exists, that supplied by neuroaesthetics. The neuroaesthetics movement, they claim, shows that it is "plainly possible, to provide explanations of the appreciation of art which do not rely at all on external factors, but which remain within a strictly neural domain" (p. 50, emphases added).

The next section will demonstrate that it is only through commitment to very special kinds of 'strictly neural' explanations of art that neuroaesthetics could support a requisitely strong internalism – one that would, in fact, compete with an enactive aesthetics. But, even in advance of that clarification, it should be clear enough that extreme versions of internalism and enactivism do not mix. Thus if neuroaesthetics puts full weight on neutrally-based activity to explain the true basis of the production and consumption of art then such theories exclude taking seriously an enactive approach to aesthetics. This only follows however if defenders of neuroaesthetics advance very strong claims – if they hold that internal representational activity that is neutrally based is all that essentially matters for the appreciation of art.

Do they? The main spokespersons for neuroaesthetics certainly make remarks of a seemingly hyperbolic character that suggest a commitment to the strong reading. Thus Zeki [40] famously insists "There can be no satisfactory theory of aesthetics that is not neurobiologically based" (p. 52). He also tells us "All visual art is expressed through the brain and must therefore obey the laws of the brain" ([39], p. 1). And that to understand art we should not look to what artists 'say about their

work' since it is "what they do to our brains that matters" (ibid, p. 8).[7] These remarks can encourage a strong reading, but in other places the claims made on behalf of neuroaesthetics are decidedly more modest. We are told that artful minds are not wholly but only "substantially based on the activity of the brain" (ibid, p. 1, emphasis added). And Zeki [39] openly recognizes that in focusing on the visual aspects of artistic production and consumption he "leaves aside complex, narrative and representational work" (p. 2). He also admits that a full account would require understanding in detail how and where "the aesthetic experience that a work produces arises, nor yet about the neurology underlying the emotional experience that it arouses" (ibid, p. 8). Since the critical importance of those aspects is not denied, he regards his theory which focuses exclusively on the visual aspect not as an essentialist thesis but as "a modest contribution" (ibid, p. 2). Hence, he speaks of being on the threshold of a great enterprise of which at this stage he is only making a beginning by providing the "outlines of a theory of aesthetics that is biologically based" (ibid, p. 1).

So which is it? Is the strong or only a weak reading of neuroaesthetics warranted? We learn more by examining the details of Zeki's more precise thesis. His central claim is that the function of all perception is to acquire knowledge, which he interprets to mean knowledge of enduring characteristics of the world. It is this fact that allows for the link between neurology and art.

When perceiving we are able to detect constancies despite the incredible variation in what strictly comes before our eyes. This involves being able to discount continual changes and to see through them to what remains the same from case to case. Zeki [39] understands this as a process of receiving, sorting and discounting informational content in order to categorize and assign characteristics to the environment. As Plato would have had it, to represent objects as they truly are requires penetrating beyond appearance. Perception is a process of selection, one that is roughly understood by cognitive neuroscientists to be "a process of 'unconscious inference' … undertaken in a specific area of the brain" ([39], p. 6). So, as enactivists also stress, perception is anything but passive. It demands effort but this is understood as cognitive effort. Hence artists paint with their brains; their eyes and the rest of their body and environment merely enable this by helping – in good cases – to convey the relevant informational content that is processed (cf. ibid, p. 13). This is where we find the strong essentialist thesis in neuroaesthetics. For Zeki takes it that the function of art is, definitionally, "very similar to the function of the brain: to represent the constant, lasting and enduring features of objects and surfaces, faces, situations and so on and thus allow us to acquire knowledge" (ibid, pp. 9–10). Thus:

> in order to represent the real world, the brain (or the artist) must discount ('sacrifice') a great deal of information reaching it (or him), information which is not essential to its (or his) aim of representing the true characteristics of objects (ibid, p. 10, emphases added).

[7] This is because, for Zeki [39], "painters are also neurologists … [who] experimented on, and without ever realizing it, something about the organization of the brain" (pp. 2–3).

Zeki's is not the only neuroaesthetic theory on the market. Ramachandran and Hirstein [33] offer a proposal in a similar spirit but which disagrees with Zeki's thesis that representing the enduring characteristics of reality provides the key to understanding the essence of art. Instead they claim "what the artist tries to do (either consciously or unconsciously) is to not only capture the essence of something but also to amplify it in order to more powerfully activate the same neural mechanisms that would be activated by the original object" (p. 17). In explicating their proposal they posit the existence of 'universal rules' that govern the creation and appreciation of works of art of the sort which engage us aesthetically. Thus, according to these scientists, "artists either consciously or unconsciously deploy certain rules or principles (we call them laws) to titillate the visual areas of the brain" (ibid, p. 17, emphasis added). It is clear that this hypothesis involves advancing a strong cognitivist interpretation of what the relevant neural activity does. Thus Ramachandran and Hirstein [33] stress that there are:

> three cornerstones to our argument. First, what might loosely be called the 'internal logic' of the phenomenon (what we call 'laws' in this essay). Second, the evolutionary rationale: the question of why the laws evolved and have that particular form (e.g. grouping facilitates object perception). And third, the neurophysiology (e.g. grouping occurs in extrastriate areas and is facilitated by synchronization of spikes and direct limbic activation). All three of these need to be in place—and must inform each other—before we can claim to have 'understood' any complex manifestation of human nature — such as art. (p. 17, emphases added).

Going still further beyond Zeki's pioneering work, newer proposals focus on the neurobiological basis of our appraisals and emotional responses to art. Brown et al. [1] claim to have conducted:

> the most comprehensive analysis to date of neuroaesthetic processing by reporting the results of voxel-based meta-analyses of 93 neuroimaging studies of positive-valence aesthetic appraisal across four sensory modalities. The results demonstrate that the most concordant area of activation across all four modalities is the right anterior insula, an area typically associated with visceral perception, especially of negative valence (disgust, pain, etc.). (p. 250).

But, again, this is not just discovery of where the relevant activity occurs, which would be a purely correlational thesis, rather it involves a proposal that "aesthetic processing is, at its core, the appraisal of the valence of perceived objects" (ibid, p. 250, emphasis added).

Others too seek to give pride of place to "the embodied motor and emotional components of esthetic [sic] experience" ([16], p. 688). These theorists explicitly set out to correct other neuroaesthetic accounts – those just mentioned – on the grounds that they overemphasize purely cognitive and conceptual factors in stressing "the mere, though vital, perceptual – and mostly visual … ability of the brain to capture essential perceptual elements of the environment" (ibid, p. 688).[8]

[8] One of their central complaints with the more cognitively focused proposals is that "Observing the world is a more complex enterprise than the mere activation of the visual brain, as it implies a

It is claimed that sensorimotor processing enables the aesthetic experience by allowing "the beholder to feel the artwork in an embodied manner. More specifically, [the hypothesis is] …that the esthetic experience [sic] of artworks consists of activating embodied simulation of actions, emotions, and corporeal sensations, and that these mechanisms are universal" (ibid, p. 688). This "capitalizes upon the discovery of the mirror neuron mechanism [and focuses on] the dimensions of reward and explicit appraisal of the esthetic [sic] experience" (ibid, p. 688). Despite rejecting more purely cognitively focused accounts of aesthetics – those that assume the relevant neural acidity concerns making inferences in accord with universal laws – these seemingly more 'embodied' accounts still assume that the 'appraisals' and 'simulative' activity depend on the manipulation of neural representations located entirely within the brain (See Gallese [14, Gallese and Sinigaglia 15]).

It is important to note that these latter-day proposals need not compete with the original neuroaesthetic hypotheses about the visual brain. They could augment them in a complementary way, if it was allowed on both sides that aesthetics has a quite broad neurobiological basis. Might an enactive aesthetics, likewise, incorporate these neuroaesthetic proposals, whether separately or allied, into its larger story? After all, a common refrain from enactivists (and other externalists) is that "There is no reason why such … [approaches] should diminish or discard the important findings of neuroscience. On the contrary … [they will] … take advantage of them, while going beyond to encompass a broader network of processes" ([26], p. 3). Fleshing out an enactive story with insights from neurobiology would squarely address Pepperell's [32] worry – directed mainly at Noë [31] – that enactivism lays too "great stress on the way experience is enacted through the exercise of sensorimotor skills, to the point where, arguably, the role of the brain in constituting the mind is excessively underplayed" (p. 124).

There is some truth in this. Those sympathetic to an enactive aesthetics must embrace and incorporate neuroscientific findings if they are to paint a full picture. To do this they will have to forge appropriate alliances with those working in the neurosciences. What goes on in the brain is part of a larger story. But it is not the whole story. And therein lies the rub. Those who espouse neuroaesthetics are operating beyond their brief as neuroscientists. By advancing cognitivist interpretations of the relevant neural activity in conjunction with strong essentialist theses about its basis they do more than merely risk downplaying the important external factors that also matter. Neuroaesthetic theorists advance essentialist theses about artful minds just in case they claim that the relevant neural activity (however broadly or narrowly conceived) is both necessary and sufficient for aesthetics. That sort of claim will put them at odds with an enactive aesthetics. How can we tell? It is best to be on 'quantifier high alert'. One should be watchful for claims proposing that 'all' of the relevant activity takes place 'entirely' in the neural activity of the brain. For this assumes that 'all' of the relevant aesthetic activity can take place, in principle, without aid from the wider body or the environment.

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multimodal notion of vision that encompasses the activation of somatosensory and emotion-related components" ([16], p. 688).

If neuroaestheticians drop such essentialist theses then there is much that neuroscientific investigations could offer that might be incorporated into an enactive account of aesthetics. But more is needed than just this adjustment. Genuine collaboration will be barred if in investigating the neurobiological basis of our artistic capacities the neuroscientific findings are interpreted in more than a 'strictly neural' fashion. All of the neuroaesthetic proposals discussed above violate this rule in being committed to representationalism in different ways. Thus while such proposals may be – in one sense – strictly neural (in scope) they are anything but simply neural.[9] Specifically, an alliance between neuro- and enactive aesthetics is impossible so long as neuroaesthetic theories endorse a strongly representational view of the mind. Representationalism has tremendous currency; even in today's neuroscience laboratories. This is illustrated by the fact that all of the fans of neuroaesthetics couch their theories in the language of cognitive neuroscience. They freely talk of brains having knowledge, of their making calculations and inferences, of their manipulating informational contents and forming representations of the external world, of their making appraisals, of their simulating and attributing psychological attitudes. All of these processes assume the existence of contentful, subpersonal, mental representations.

More than this, it is such representationalism that makes such proposals essentially disembodied. This accusation is likely to strike some readers as simply incredible; a headline worthy only of the tabloids – 'Neuroscientists committed to disembodied view of mind!'. To show that I am not bearing false witness a brief history lesson is in order. It will make the link between representational cognitivism and disembodiment transparent. It will be revealed how neurally-based internalism is supported by Cartesian assumptions about the nature of minds.

Essentially Disembodied Minds

In setting the stage for his analysis of the internalism-externalism debate about art, Pepperell [32] identifies the grounding assumptions of contemporary internalism as follows:

> The mind is entirely the result of brain processes inside the head. The brain-centred mind is essentially separate from the world (including the body) because it is conscious while the world is not. The world is never perceived directly but is available to the subject only as an internal representation generated by neural activity (p. 108, emphases added).

It is a useful exercise to consider how these claims compare with and are supported by a Cartesian view of the mind. For doing so reveals that the very idea of an essentially disembodied mind is rooted in Descartes' intellectualism – his representational view of the mind. And highlighting this is a salient reminder of the

[9] It is slightly misleading, and perhaps a bit ironic, that Myin and Veldeman [30] claim that "neuroaesthetics … [seeks] to explain at least some cases of aesthetic appreciation in terms of strictly neural factors" (p. 49).

extent to which the Cartesian vision of mind still informs today's cognitive neurosciences.

I begin with a caveat. Focusing on the first line of Pepperell's quotation, it must be admitted that the idea that minds are wholly the product of brain activity is – in one respect – clearly unCartesian. As it stands above this claim would have been anathema to the historical Descartes. He would not have accepted the idea that mental activity is wholly driven by and explicable in terms of neural activity. As a proponent of interactive substance dualism Descartes held that minds had unique causal powers and that – because of this – they could influence our brains. This was so even though minds were thought to be ontologically distinct from bodies (and, likewise, from all other physical entities). Indeed it was precisely because minds had certain inexplicable properties and associated powers that, for Descartes, they were thought to be non-physical substances.

It follows that modern-day internalism would have been quite alien to Descartes to the extent that it fails to put minds, and not brains, in the driver's seat of some mental operations. Even so, most contemporary internalists endorse the idea that mental properties are irreducible to neural properties, while holding onto the idea that they are, nevertheless, fully dependent on brain activity. Proponents of the mind/brain supervenience thesis defend just this view. Unlike Descartes, such theorists do not posit two causally interacting substances – the mind and the brain. Still they endorse only a limited kind of dualism – property as opposed to substance dualism.[10] Mental properties do not reduce to physical (not even neural) properties. Making this relatively modest adjustment does no violence to the internalist tenets Pepperell cites above. Thus looking at the bigger picture, today's internalism can be seen as pretty much firmly Cartesian in spirit.

Now, for the important clarification: it is vitally important to be clear about why it was that Descartes thought that minds were necessarily distinct from and irreducible to brains, bodies and the wider world. It is important to understand why he thought minds were essentially disembodied. Pepperell [32] puts this down to the fact that only minds are 'conscious' while all of the rest of non-mental reality is not. This rendering fits with standard assessments. It is widely supposed that Descartes introduced a "dualism of conscious mind and unconscious matter" ([35], p. 6). Yet to say that Descartes took 'consciousness' to be the mark of the mental, without further ado, is apt to mislead. Descartes' vision of the nature of the mind had nothing to do with phenomenal consciousness, at least as that notion is standardly understood by contemporary thinkers (and, especially, analytic philosophers). Cartesian dualism was not inspired by observations about the irreducibly qualitative character – the so-called what-it-is-likeness – of phenomenally conscious experiences. It was not concerns about consciousness in this sense that motivated his conviction that minds must be ontologically distinct from all things physical.

[10] Of course, the idea that minds supervene on brains isn't a no-brainer. It raises famously deep and thorny puzzles as to how mental properties manage to make a causal difference without all of their causal powers being usurped by the neural activity upon which they depend (see Kim [22, 23], Hutto [18]).

Rather, for Descartes, minds are defined by their possessing contentful thoughts. Thus, for him, "the term 'thought' served as the most general expression for the common property of all mental acts" ([20], p. 23). And here it cannot be stressed firmly enough that, in his view, "thoughts … are essentially conceptual, possess representational content as their very function, are not 'felt' and, in themselves, present no purely qualitative features of consciousness" ([34], p. 4). Intellectualism about the mind, in the form of a commitment to a representational theory of the mind, was the true basis of the Cartesian contrast between minds and bodies. Underlining this point, Seager [34] draws attention to a pivotal remark in Descartes' Replies to Objections: "Something I thought I was seeing with my eyes [/brain/body] is in fact grasped solely by the faculty of judgement which is in my mind" (1641/Cottingham et al. 1984, p. 21). [7, 11]

Descartes assumed that contentful thoughts of this sort– i.e. mental representations – were required to explain voluntary action and the creative use of language ([3], p. 40). Purely mechanical explanations could not adequately account for such phenomena. Here it should be recalled that Descartes' overarching ambition was:

> to give such a full account of the entire bodily machine that we will have no more reason to think that it is the soul which produces in it the movements which we know by experience are not controlled by our will than we have reason to think that there is a soul in a clock which makes it tell the time (1664 §226/Cottingham et al. 1985, p. 315 emphasis added). [6, 12]

The cited exception – for movements controlled by the will – is made because it was assumed that human volition essentially involves the mindful intellect – e.g. planning and choice. It was the unpredictable creativity sponsored by human thinking that gave Descartes reason to doubt that operations made possible by the intellectual mind could be explained by mere mechanisms, however sophisticated and complex (1637 Part V, §55–57/Cottingham et al. 1985, pp. 139–140, cf). [6, 10]

It is right here that we find a direct and indelible link to contemporary thinking about essentially disembodied minds – thinking that informs cognitive neuroscience and which underwrites the neuroaesthetic theories examined above. For the fact is that "Descartes' vision of the mind is the foundation of modern cognitive science. The linchpin idea of this upstart science is the mind is in essence a field of representations" ([34], p. 4, emphasis added).[11]

Moreover, just as today's cognitive scientists assume, Descartes did not hold that the representations in question would always form part of our explicit, reflective consciousness. As Seager [34] makes clear:

> Although Descartes is famous for the 'transparent mind' thesis, and although there is no doubt that he accepted the thesis, he did not deny and in fact his views positively require that the mind is supported by a massive structure that operates in the shadows, outside of or below consciousness … What is more, this structure is what we would call a cognitive structure. It is a system of representations (p. 12, emphasis added).

[11] Seager [34] goes so far as to say that it is undeniable that "the core idea of the representational mind is to be found in Descartes, and that it is this vision that provides the foundation of what is really the only viable scientific picture of how cognition works" (p. 7, emphasis added).

The 'shadowy legion of representations' that Seager speaks of in this context would be understood in modern lingo in terms of subpersonal (as opposed to subconscious) representations. But to count as mindful these representations were assumed to have semantic properties of much the same kind that we assume linguistic symbols have. Hence, Descartes held that "qualities of external objects can imprint various ideas on the brain through the mediation of the senses" (1637 Part V, §55–56/Cottingham et al. 1985, p. 139). Although it is not wholly clear what he took the vehicles of cognition to be (Descartes called them 'images'), he held that, like words, the 'ideas imprinted on the brain' stood for the non-mental items they represented without having to resemble those items (see Dascal [9], p. 77). Cartesians, then and now, do not view representational minds as linguistic per se but they do endorse something "akin to the Fodorian hypothesis of a 'language of thought', i.e., of an innate and (therefore 'natural') language-like mental medium" ([9], p. 78). So, yet again, we can see that there is a very close fit between views espoused by the historical Descartes and the views propounded by some of today's Cartesian-inspired cognitive scientists (cf. [13]).

What is important to observe for our purposes is that it is the Cartesian notion of the representational mind which is the true basis for an essentially disembodied vision of mind. Representationalism provides a definitive and positive way of characterizing the mind so that the mental can be cleanly demarcated from what is not mental. Remarkably, by the lights of representationalism, bodily feelings, sensations and awareness, all fall on the non-mental side of this line to the extent that they are not informed by thoughts with language-like contents. This is clear in Descartes' works. In his Fifth Set of Replies he makes this point explicitly with respect to sensations, writing:

> as for movement and sensation, I refer them to the body for the most part, and attribute nothing belonging to them to the soul, apart from the element of thought alone ([11] Fifth Set of Replies, §351/Cottingham et al. 1984, p. 243). [7]

Descartes saw nothing controversial in the idea of animal experimentation, since it followed that if animals lack intellect they have no mentality whatsoever. For example, they were incapable of feeling genuine pain. Creatures without a capacity for intellectual thought were regarded as mere machines. Contrawise, what makes for genuinely conscious experience on this model of mind is really a capacity for representation. Thus Malcolm [25] observes of the Cartesian doctrine: "If every human sensation includes thought, and if thought is propositional content together with propositional attitude, then at the very centre of every sensation of ours there is a proposition" ([25], p. 45, cf. [21]).

It follows that human "consciousness is essentially representational" ([34], p. 3). Underlining the point with rhetorical flair, Seager [34] asks "does every state of consciousness have representational content (or what philosophers call intentionality)? To this, Descartes answers 'yes'" ([34], p. 4, emphases original). But, as already noted, the notion of intentionality that was in play for Descartes was clearly modeled on the sort of intentionality exhibited by linguistically-based modes of thinking. Hence it turns out that his view of human conscious awareness of is regarded as a kind of awareness that; i.e. awareness of a representational, contentful kind.

Radically Enactive Aesthetics

It should now be clear that a properly enactive account of essentially embodied and extensive minds – artful and otherwise – requires a radical rejection of representationalism. Until the very idea that minds are essentially contentful and representational is surrendered there is no prospect of a détente between neuroaesthetics and enactive aesthetics.

If this is ever to come off what is needed is a de-intellectualized characterization of mind that rethinks basic mentality, uncompromisingly, in terms of extended interactions with an environment. On such an account, engaged interactions of the right kind – but nothing short of them – would suffice for the occurrence of the relevant aesthetic phenomena. Thus to truly defend the idea that artful minds are essentially embodied and extensive what is needed is a characterization of basic minds that is "more radical and ontologically more committing than either semantic externalism or simple embodiment" ([26], p. 2).

Restrictions of space forbid spelling out exactly what that account will look like or making the necessary case against representation here. Thankfully, I prepared one earlier: a detailed account and argument is already provided in Hutto and Myin [19]. Anyone interested in making proper conceptual space for the possibility that purely embodied engagements with artworks – those that can count as properly sapient in their own right (and not just sentient) despite being non-discursive should look there. For only a truly radical enactivism takes fully seriously the possibility that embodied aesthetic sensitivity that reaches right out to works of art can exist in conjunction with, and complement, more hermeneutic modes of understanding art.

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Chapter 14
Neuroaesthetics as an Enactive Enterprise

Christian Tewes

Abstract The aim of this chapter is to delineate how the explanatory power of neuroaesthetic interdisciplinary oriented research can be formed and enhanced within an enactive framework. To this end, the paper will focus on a neurodynamical model of intentionality and emotion that is centred on a sensorimotor approach to cognition. This enables the critique and further development of one of the most advanced psychological accounts of aesthetic judgements and emotions of recent years that is especially apt to integrate and synthesize neuroaesthetic research. Finally, it will be shown that recent research foci in neuroaesthetics already indicate the benefits and fruitfulness of what can be called a 'front-loaded' enactive approach to aesthetic phenomena.

Keywords Neuroaesthetics • Enactivism • Neurodynamical model • Mirror neurons • Aesthetic realm

Introduction

Neuroaesthetics is a relatively young discipline within the cognitive sciences whose development is characterised by a proliferation of new research projects, conferences and publications but which has still to meet the challenge of defining and explicating the subject matter and boundaries of its own domain ([1], 682). For that reason Nadal and Pearce, for instance, give a broad working definition of neuroaesthetics that is not only confined to the exploration of visual processing of artwork but also includes the neural and evolutionary basis of the aesthetic attitude towards works of art, everyday objects and natural scenes ([2], 174). However, there has been continuing criticism of particular neuroaesthetic research projects concerning their explanatory force with regard to the aesthetic domain. Thus Hyman has convincingly shown that, for instance, the early neuroaesthetic work by Hirstein and Ramachandran unjustifiably neglects important and basic insights of traditional aesthetics, resulting

C. Tewes (✉)
Department of Philosophy, University of Jena, Jena, Germany
e-mail: christian.tewes@uni-jena.de; chtewes@t-online.de

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in a misrepresentation of the explored subject matter [3, 4]. In a similar vein, Croft has recently demonstrated that the scientific contribution of neuroaesthetic research to aesthetic experience and evaluation is in many cases highly questionable and is impoverished by the lack of a balanced interdisciplinary research program in neuroaesthetic explorations [5].

In this chapter I will concentrate on the *enactive* approach to cognition and experience in order to analyse and elucidate how some of the delineated challenges and problems in the rapidly growing field of neuroaesthetic research could, in principle, be met and overcome. The conviction that the human mind is embodied in the entire organism and the surrounding world is crucial to the multifaceted idea of enactivism ([6, 7], 243). Moreover, from an enactive point of view cognition is not something that could be separated from the emotional and empathetic states of the body ([8], 45–46).

In the following sections I am going to concentrate on three different fields of inquiry so as to demonstrate how enactivism can be used as a scientific framework to criticize, elucidate and deepen the exploration of aesthetic experience and judgement. This should also contribute to the clarification of neuroaesthetics as a balanced interdisciplinary research concept. Thus, the first section will mainly be concerned with a selective explication of some key concepts of enactivism with a special emphasis on Freeman's sensorimotor approach to cognition and its significance for neuroaesthetics. In the second section, I am going to introduce and discuss major aspects of Leder's highly advanced psychological model of aesthetic experience and judgment and its significance for interdisciplinary research in neuroaesthetics. Finally, I will briefly highlight recent research foci which have, at least in principle, the potential to create a new 'front-loaded' enactive foundation for neuroaesthetic research.

Enactivism as a Framework for Neuroaesthetic Research

Central to the concept of *enaction* or the enactive approach to neuroscience – which was first introduced by Varela, Rosch and Thompson into the cognitive sciences [9] – is the idea that the brain is embedded in the entire organism and that the latter is to be understood as an active experiencing agent whose self-regulating activity essentially contributes to its dynamic self-maintenance. The nervous system is likewise conceptualized as an autonomous dynamic system. However, despite its relative autonomy as a circular and re-entrant network, the brain is intimately linked and depends in its functions on sensorimotor interaction and coupling with the environment, an insight that can be regarded as another central aspect of enactivism. This insight can already be traced back to the research of Jakob von Uexküll and Viktor von Weizsäcker who stressed and explored the interrelational dependency between movement and perception [10, 11]. This fact can be mutually described and analysed at the *personal* and *subpersonal* level of description, both of which are constitutive for the understanding of the cognitive agent. Another significant part of

bodily activity concerns the intersubjective interactions between the self and the other, involving its cognitive and affective dimensions. In the following section, I will focus mainly on a neurodynamical model of sensorimotor activity as a necessary embodied foundation for intentionality, emotion and aesthetic experience.

A Neurodynamical Model of Intentional Action and Emotion

Especially Walter Freeman's work over the last few decades on a neurodynamical model of intentional behaviour and emotion is of great interest, as it helps elucidate the sensorimotor coupling with the environment, focussing specifically on the subpersonal level and the inseparable entanglement of emotion and intentionality. This will simultaneously shed light on the constitution of aesthetic experience, showing how relevant intentions and emotions are for the experience and understanding of aesthetic objects, landscapes, regions and aesthetic scenarios. In this regard, Steven Brown and Ellen Dissanayake have argued recently that the understanding of aesthetics "… must be rooted in a theory of emotion …" ([12], 50).

In his neurodynamical account Freeman distinguishes five different causal loops that require the dynamic interaction between brain, body and the world and are centred on the limbic system. It is crucial to his approach – echoing pragmatist accounts of movement and perception – that "… perception is defined as a form of intentional action, not as a late stage of sensation" ([13], 220). The first and most extensive motor loop thus involves a sensorimotor interaction between the self, the brain and the environment. Motor actions are shaped by goal-directed behaviour and require a corresponding prior state of readiness or expectancy. This involves, among other things, the adjustment of the sense organs to the expected but not-yet-present perceptual content of the environment "… and selective sensitization of the sensory cortices" ([14], 76). The reception of sensory stimuli depends on motor actions, but the movement of the body depends in turn on the prior sensory outcomes of former actions, for instance with regard to respective memory capacities and learning processes.

Though the proprioceptive (second) loop is closed outside the brain it still resides inside the body. The crucial point here is that the brain cannot sustain the functioning of muscles, bones, and joints without continually monitoring their array by receiving information from their sensory receptors ([15], 83). The pathways include the already mentioned sensory receptors in the respective areas of the spinal cord, cerebellum, thalamus and somatosensory cortex.

The remaining three reciprocal causal circuits all reside inside the brain: a control loop, a reafference loop and a spacetime loop. It is decisive for Freeman's neuropsychological dynamic approach that he places special emphasis on the limbic system as the main source of purposeful behaviour ([15], 87). Concerning the motor control loops, the limbic system receives input from the sensory cortex through the entorhinal cortex, an area which can be described as the main interface to the hippocampus. The dynamic patterns of the limbic system then go through different routes (basal

ganglia, thalamus, hypothalamus etc.) into the frontal lobe by establishing a reciprocal interaction with the motor systems. Specific areas of the frontal lobe are strongly associated with executive functions, which include, for instance, the capacity for goal-directed behaviour, the anticipation of one's action ([16], 92), the control and coordination of task-specific processing ([17], 106) and emotional and voluntary self-regulation. It is thus a main function of the frontal lobe – beside the temporal organization of goal-directed behaviour – to be involved in constraining limbic impulses and to control and inhibit them ([18], 382). Additionally, the ventromedial areas of the prefrontal cortex are connected with the expression and regulation of emotional behaviour ([16], 94). Freeman himself specifies two functions of limbic control in the frontal lobe. As he points out, the primary motor cortex controls the position of the limbs as well as of the eyes and the head in convergence with the goal directed-actions that are initiated in the limbic system. Freeman summarizes the global functioning of the frontal lobe with regard to emotions as follows:

> The frontal lobe guides and enriches intentional action but does not initiate it. In respect to emotion, it provides the operations that distinguish between pity and compassion, pride and arrogance, humility and obsequiousness, and so on, in an incredible range of nuances of feeling and value ([13], 225).

This passage makes clear that the fine grained processes of the frontal lobe are especially correlated with the individuation of the intentional content of diverse emotional states. It is interesting to note that, at the psychological level of analysis, it is common to differentiate between cognitive processing events/states of appraisal and affective or emotional processing events/states. Klaus R. Scherer, for example, in his component process model of emotion, defines 'appraisal' as an organismic evaluation of sequential stimuli according to criteria such as 'novelty', 'goal significance', 'intrinsic pleasantness' etc. ([19], 74). However, in contrast to dualistic approaches to cognition and emotion in the field, emotional reactions represent for Scherer the *dynamic and cumulative results* of appraisal-driven states (modifications of non-linear interactions between subsystems) ([19], 74).

In a similar vein, Marc D. Lewis views appraisals in his dynamic system model of emotions as a co-emergent wholeness that gets continuously influenced and shaped by emotions and vice versa. Referring to Freeman's neurodynamic model of intentionality, he puts the essence of this point as follows:

> I view emotional interpretations as the psychological correlate of the resonance between orbifrontal (appraisal) and limbic (emotional) activity. Freeman's global intentions may both emerge from this resonance and maintain it in a circular causality ([20], 46).

As we will see in further detail in the next sections, this resonance loop is also especially important for the neural underpinnings of aesthetic experience and judgment. Thus a lot of neuroaesthetic research so far was and is not only concerned with the aesthetic appraisal of aesthetic stimuli concerning aesthetic properties such as beauty and ugliness but also with the emotional response towards those experiences ([1], 682, 687). It is interesting to note that those experiences and judgments involve, among other things, the activation of specific regions of the prefrontal

cortex including the orbitofrontal cortex and activation of the anterior cingulated cortex ([21], 252, [22], 282), demonstrating also at the empirical level the importance of emotional interpretation for aesthetic experiences and judgments.

The remaining two loops of Freeman's neurodynamic model are the already mentioned reafference and spacetime loops. The latter consists of dynamic interacting patterns between the limbic system and the hippocampus, a region which is deeply involved in the navigation and orientation of the body in space and time. The former loop is strongly connected with the expected encounters of sensory experiences with regard to the different sense modalities. Those anticipations are at the core of intentional action because they involve the preconfiguration of time sequences to achieve the intended goal and to enable a constant adaptation of behaviour to deviant (unexpected) outcomes. In contrast to the initially described sensorimotor loop, this circuit resides entirely inside the brain and involves a non-linear state transition with its epicentre in the limbic system, activating limbic patterns which are transferred to the motor system, the spinal cord and simultaneously to the primary cortices so that they are "prepared" for the outcome of the motor action ([14], 80).

Dynamical Systems and Mirror Neurons

The reciprocal (bidirectional) causal loops described so far rely on concepts drawn from the dynamical system theory which is itself a major ingredient of enactivism. Beside the conviction that embodied cognition is a dynamic aspect of living and evolving agents occurring *in* time ([6], 38, [23, 24], 244), cognition is here no longer conceptualised as a computational linear input-output function. Rather it is seen as a self-organizing whole emerging from many interacting non-linear feedback processes [25]. For this reason the concept of circular causality is of specific interest for neuroaesthetic research. What distinguishes those causal loops, beside their reciprocal structure, are their multilevel relations (local to global determination and vice versa) ([26], 420). This makes it possible, as Lewis has pointed out, to integrate different levels of descriptions such as psychological and neural processes ([27], 169).

A further physiological source for the multifaceted aspects of sensorimotor loops between action and perception, especially at the intersubjective level, was found with the discovery and study of 'mirror' neurons. These were first discovered in Macaque monkeys in the rostral part of the inferior premotor cortex (F5) and became active both when the animal performed a motor action and when it observed the same action executed by an experimenter ([28], 396). In contrast to canonical neurons in F5, the discharge of mirror neurons is not correlated with objects or the size of a visual stimulus but with the observation of actions ([29], 80). It has been shown in many studies that in humans too, the perception of others' actions involve the activation of cortical motor patterns ([28], 397). Without going into further details at this point, the significance of mirror neurons for imitating, emotional understanding, empathy and social cognition etc. has been supported by many

empirical findings during the last decade. Those findings can be interpreted within the framework of enactivism as embodied resonance mechanisms that enable the self-other interaction at many different levels. Recent neuroaesthetic research has indicated its great potential for an exploration of the embodied foundation of aesthetic experience and judgement. However, as we will see, those studies and the interpretation of their results necessarily require a foundation of neuroaesthetics in phenomenological research as a further component of enactivism.

Phenomenological Foundations of Aesthetic Experiences

So far I have been mainly concerned with a neurodynamical model of intention and emotion that I will put to work with regard to neuroesthetic research in the next sections. However, unless the first- and second person perspectives concerning intentionality, emotion and aesthetic experience are also integrated into neuroaesthetics, the whole enterprise can become unreasonably reductive or at least incomplete. In this regard, it is crucial to notice that grasping, smelling, seeing, feeling or experiencing natural scenes or objects with a specific aesthetic attitude requires not only a brain but a smelling, seeing, feeling or aesthetically experiencing body. Furthermore, the particular two-sidedness or double aspect of the body has been particularly emphasized by phenomenological analysis: On the one hand, my subjectively lived body is given to me as an interiority with a volitional structure (a center of volition), distinguished through an immediately appearing qualitative dimension of experiences that are tightly connected with a basic form of prereflective selfhood ([30], 156). On the other hand, when I see or touch my own body, I am confronted with the spatial extension of my living body (organism). The crucial point here is that these simultaneous experiences of interiority and exteriority are different modes of self-manifestation that first and foremost enable the intersubjective experience of alterity. But how do we gain access to this latter mode of the self-manifestation of otherness? Apparently, it is neither the first-person stance which constitutes experiential access to the expressive behaviour of others, such as the manifestation of emotions and feelings. Nor is it the mainly third-person perspective of the neurodynamical model described above. It is an immediate non-inferential access whereby we experience goal-directed behaviour as consisting in expressive and meaningful units. Referring to Scheler's basic insight about the foundation of intersubjective experience, Zahavi puts the point as follows:

> [I]n a face to face encounter, we are not confronted with a mere body, or with a hidden psyche, but with a unified whole. It is in this context that Scheler used the term "expressive unity" (Ausdruckseinheit) [[30], 150].

Especially Mikel Dufrenne has demonstrated in his phenomenologically-oriented work on aesthetic experiences and objects that these basic insights also play a major role in the understanding and interpretation of aesthetic phenomena. Regarding works of art, he points out that it requires a specific aesthetic attitude to transform it

into an aesthetic object. This aesthetic attitude, echoing Kant, perceives the art work for its own sake, leading, beside other things, to an experience of the aesthetic object as a "quasi subject" ([31], 196). This means that aesthetic objects in their different guises reveal within the aesthetic attitude the self-manifestation of the creator's expressivity and aims, and this needs, of course, to be differentiated from everyday encounters with real subjects and objects. This expressivity is deeply connected with the intensification of feeling and involves affective qualities that are the result of articulations of feelings and emotions. However, this does not mean that artworks could be reduced to the evocation of those interconnected affective qualities since such works reveal for the aesthetic observer at the same time an aesthetic world "… fabricated from cultural and historical strands" ([32], 3). These few remarks already indicate the significance of an embodied phenomenological approach to the aesthetic realm, which will prove to be highly relevant for psychological and neurological research in the aesthetic domain.

An Enactive Neuropsychological Approach to Aesthetic Experience and Evaluation

A Psychological Information Processing Account of the Aesthetic Realm

In order to demonstrate the last point from the preceding section, I will focus now on Leder's psychological model of aesthetic experiences and judgments. Leder et al. describe their research interest as an attempt to elucidate why people are so attracted by modern art. The leading idea is that we are living in what art historians or cultural sociologist have phrased as an increasing 'aesthetisation of the live world', not only with regard to blockbuster or art exhibitions but also with regard to fashion and design ([33], 490). This can be understood as the signature of an epochal change wherein subjects in expanding rich economies refer to their daily lives more and more in an aesthetic fashion, creating incessantly new forms of lifestyle, consumption and production. As Leder points out, the success of modern art also depends significantly on inventing and creating new styles after the liberalisation of aesthetic constraints in art production over the last 200 years. This is especially important for aesthetic research because

> […] modern art presumably requires a larger need for interpretation than any previous art. Concerning the psychological understanding of aesthetic experience, the better the understanding of an artwork, the higher the probability that it produces aesthetic pleasure. This is highly significant, as the understanding is no longer finished with just a visual representation of the 'what is depicted' ([33], 491).

Leder's model mainly concentrates on aspects of visual aesthetics but is not necessarily confined to visual arts. Details of the model are shown in the diagram below. First of all, Leder differentiates between five information processing stages

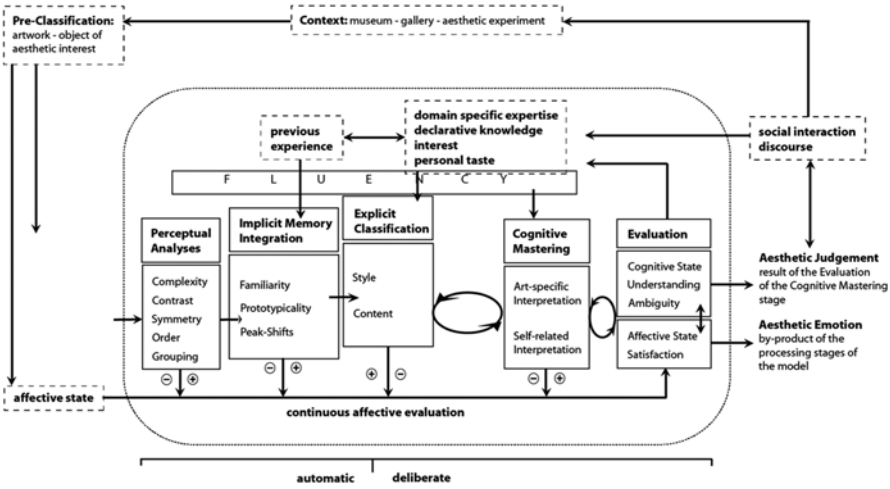

Fig. 14.1 Leder [33] (Designed by E. Schwille)

of cognitive aesthetic analysis, which are reminiscent of distinct modules, leading to two results/outputs, namely aesthetic *judgments* and aesthetic *emotions*.

What is important to notice, however, is that the diagram is not meant to be exhaustive and does not refer to a strict serial flow of information ([33], 493). This is so because the delineated processes contain at least two loops that justify a dynamical system interpretation of the aesthetic cognitive processes in question (Fig. 14.1).

Furthermore, the dense interrelationship between the differentiated processing stages of aesthetic experience suggests a non-linear interpretation of this dynamic approach to the aesthetic realm. But before exploring these points any further, I want to draw on some important details of the model.

Without considering and integrating Freeman's first sensorimotory loop of brain, body and world into his information processing approach, there is nevertheless a feedback loop in Leder's model that partially mirrors its structural components. I am talking of the bidirectional circular loop (not plotted as a circle within the sketch) that is constituted through the contextual embeddedness of the aesthetic realm, which first of all enables the dynamical process of aesthetic experiences and which is itself dynamically shaped and changed by the five information processing stages and their resulting emotions and judgments. The crucial point is here the significance of the context (museum, art exhibition or a sacred place) within which art objects are viewed and evaluated. This induces, according to Leder, a specific attitude which is a precondition for specifying the aesthetic qualities and properties of art objects. As Cupchik et al. have pointed out, this attitude needs to be further analysed as a kind of active engagement:

> While engagement is not sufficient for aesthetic evaluation, it is a *necessary* condition for aesthetic experience to occur. This is in line with our viewpoint that aesthetic experience necessitates an intentional orienting of perception toward distilling the properties of artworks ([34], 85).

With regard to the aesthetic domain this passage is entirely in compliance with the general enactive insight that dynamic agents shape their environment or life-world and thereby actively participate in bringing forth significance and valence. However, what a further analysis of Leder's account of aesthetic phenomena reveals is the "absence of the body" or a disembodied stance to cognition and perception. Thus, the first layer or module of the *perceptual analysis* concentrates on the processing of visual features such as 'symmetry', 'complexity', 'contrast' and 'grouping effects' that are traditionally thought of as underlying features of emergent aesthetic properties. But Freeman's insight that the perception of those features depends on the position and kinaesthetic motivation of bodily movement is completely omitted in the model and its further description. This comes as a surprise because Cupchik, whose work is a major source for Leder's considerations on expert knowledge and top-down influence, explicitly integrates the significance of motor actions for aesthetic production and perception in his multilevel analysis of aesthetic processes ([35], 93–94).

Likewise important is the fact that empirical studies confirm the significance of *active engagement* with regard to this basic aesthetic processing stage of the model. Jacobsen et al., for example, have undertaken an important fMRI study aimed at identifying the neural correlates of aesthetic judgments of beauty. In their study they concentrated on *symmetry patterns* because these are widely known to be significantly correlated with evaluative aesthetic judgments. For this study Jacobsen used abstract graphic patterns so as "… to minimize influences of attitudes or memory-related processes …" ([22], 281). Despite the artificial situation of the laboratory setting and the unusual target objects used to reduce the influence of memory retrieval and complex attitude structures, the study appears to show that the active engagement of the observer seems to be responsible for the significant comparative difference between *aesthetic judgments* and descriptive *symmetry judgments* on the same stimuli. As the outcome of the study revealed, the differences between these types of judgment are reflected at the subpersonal level with specific contrastive activations. The aesthetic evaluative judgments, for instance, encompass brain regions that are also involved in social and moral evaluative judgments such as the medial wall and the ventral prefrontal cortex and which also arouse the left temporal pole and the temporoparietal junction. Furthermore, it could be shown that there is a significant relationship between the complexity of symmetric patterns and their aesthetic evaluation as beautiful ([22], 282). But how can one explain those differences between evaluative aesthetic judgments and purely descriptive symmetry judgements? As Jacobsen points out, the brain regions which are specifically activated by aesthetic judgments are known to be functionally related to introspective evaluations of one's own mental states ([22], 283). This means, contrary to Leder's conviction, that even the first layer of perceptual analysis is already shaped, not only by the prereflexive kinaesthetic motivation of the body but also by top-down influences which depend on the attitude and *reflexive* capacity of the aesthetically tempered observer.

What do these conclusions imply for Leder's theory of aesthetic emotions and appraisals? The unidirectional representation of perceptual analysis within the sketch needs to be corrected and replaced by a further bidirectional loop. Taking

into account the sensorimotor coupling between body and environment, there is no unidirectional flow of information that gets passively registered at the supposedly most basic level of perceptual experience (analysis). Rather, the kinaesthetically motivated position and expectation of the observer actively contribute to the constitution of the aesthetic experiences in question. Freeman's reafference loop reflects and empirically supports this insight at the neural level as well. As we have seen with regard to Jacobsen's research, even in the artificial laboratory setting of his fMRI study, the reafference loop is the *sine qua non* of the hard-won empirical results. This is because without the constant intentional preconfiguration of the probands to the different task settings, the preplanned study could not even get off the ground. Furthermore, as the proceeding examples have shown, it seems to be empirically unjustified to deny *any* top-down modulation even for the perceived properties listed in the first box of the model. If this is true, then the sharp distinction between 'automatic' and 'deliberate' aesthetic processing stages also becomes blurred and requires the integration of further research on these issues from the first- and third-person perspective.

From an enactive point of view these considerations imply a deepened dynamic conception of the whole process of aesthetic perception and evaluation. To be more precise, this means that the rather linear and unidirectional processing stages from 'perceptual analysis' to 'implicit memory integration' up to the 'explicit classification' of style and content in artworks need to be called into question. The point is that half of the processing states in Leder's model imply what Susan Hurley has dubbed the 'vertical modularity' view of the mind:

> Each vertical module performs a broad function, then passes the resulting representation on to the next. Within the perceptual module, information about location, color, motion, and so on, is extracted from inputs by various parallel streams of domain-specific perceptual processing. The representations produced by the various streams of input processing converge and are combined by perception ([36], 406–407).

The contrasting dynamic picture of the mind and its interdependency with subpersonal processes consists of what Hurley has termed 'horizontal modularity'. The key idea is that there are different layers, conceived of as content-specific networks with domain-specific functions, which are connected by various decentralized feedback loops without any central processor as the cognitive interface between action and perception ([36], 407–408).

These considerations can equally be applied to Leder's account of the aesthetic domain. Thus, it is far from clear why, for instance, peak-shift effects or aesthetic preferences, which are affected by the principle of familiarity, should not also stand in a reciprocal relation to aesthetically perceived properties such as symmetry or complexity. To make this point clear, we will briefly look at the peak shift effect. Especially Ramachandran and Hirstein have stressed the significance of this principle for aesthetics. In their seminal and often criticized paper *The Science of Art* they advocate the view that artists try to capture in their artworks the essence of something and to amplify it so as to "…more powerfully activate the same neural mechanisms that would be activated by the original object" ([4], 17). Both hold

that peak shift effects are essentially involved in realizing this general function of art. If a rat is taught to discriminate a rectangle from a square, it will quickly learn to respond more frequently to the rectangle. But as can be shown, the rat does not learn to respond more frequently to a specific rectangle (for example with the ratio 3:2), but to the rule of "rectangularity". Ramachandran and Hirstein relate this effect to human pattern recognition with regard to aesthetic preferences. They try to show that this effect is a necessary precondition for the creation and recognition of caricatures, specific forms of Indian sculptures or modern art movements or schools such as impressionism or cubism ([4], 18–20). Here I do not want to settle these issues in any detail. Important for our consideration is the fact that nothing counts against the possibility that peak shift effects – assuming their significance for aesthetic phenomena – are also involved in the amplification and intensification of symmetric and complex structures or grouping formations. But this already implies a further feedback loop between the mechanism of implicit memory integration and perceptual analysis, indicating that the interrelationships and dependencies between the different layers of aesthetic processing stages are probably much more tightly coupled than depicted in the model. This suggests a more extensive replacement of vertical modularity at the subpersonal *and* personal level with a horizontally modular feedback mechanism.

Despite these critical remarks and the suggested revisions and extensions, I still regard Leder's model as a major step forward for neuroaesthetic interdisciplinary oriented research. The reason is that it offers important explanatory tools which can synthesize psychological, neurological and cultural findings and research on issues concerning the aesthetic realm. Particularly convincing is the attempt to analyse and integrate the involvement of both bottom-up and top-down effects with regard to the emerging aesthetical emotions and judgments. Thus, it is an essential point in Leder's account that he takes the aesthetic attitude, cultural context and knowledge of the viewer seriously within the aesthetic processing stages and explains their effects by the temporal unfolding of different feedback and feedforward loops. This stands in sharp contrast, for instance, to earlier approaches in the field. This becomes especially obvious if one compares this with the famous functional definition of art given by Zeki:

> Why do we see at all? It is the answer to that question that immediately reveals a parallel between the functions of art and the functions of the brain, and indeed ineluctably drives us to another conclusion – that the overall function of art is an extension of the function of the brain ([37], 72)

This definition of the function of art, which at its core is highly reductionistic, seems to exclude from the very outset any interesting explanatory contributions to art and art production from the cultural sciences. Leder's approach, in contrast, by stressing the need for explicit classification and cognitive mastering, opens up the already mentioned possibility of explicating and integrating top-down effects with empirically-oriented aesthetic research. Those effects could in fact be demonstrated at the psychological and neurological level [34, 35]. Within the framework of dynamic system theory those effects can be conceptualized as a form of circular

causality (mutually shaping bottom up and top-down processes) that relates different levels of a system such as, for instance, the neurological, psychological and social levels of description ([20], 174). This needs to be distinguished from descriptions and explanations that refer to the co-determination and realisation of feedback loops at the subpersonal level. These assumptions and preliminary results require, of course, further empirical research and interpretation. There is more to say about this model, but I will leave it at this point so as to draw on recent neuroaesthetic research that adopts (at least implicitly) an embodied or enactive stance towards the aesthetic domain.

Embodied Oriented Research in Neuroaesthetics

Central tenets of enactivism such as the interdependency of action and perception and an embodied approach to experience and cognition have gained more and more explicit relevance in neuroaesthetic research in recent years. This concerns theoretically-oriented considerations as well as the design of experimental settings for neuroaesthetic research projects and has its roots especially in the discovery of mirror neurons. But as Froese and Fuchs have pointed out with regard to recent tendencies in social cognition research, even in the cases of some embodied accounts there are still implicit commitments to traditional cognitivistic assumptions which – from an enactive and phenomenological informed point of view – are highly problematic in their implications ([38], 206). Notwithstanding this fact, I think that these new research foci have at least the potential to give rise to a well-founded 'front-loaded' enactivism in neuroaesthetics. With the latter term, I refer by analogy to what Gallagher has dubbed 'front-loaded' phenomenology. He defines it as a direct way to use phenomenological insights for the design of experimental research ([39], 85). I will briefly demonstrate this with a specific focus on Freedberg's and Gallese's paper on *Motion emotion and empathy in esthetic experience*.

Freedberg and Gallese emphasize the importance of the neural processes which should be evoked by an empathetic access to visual artwork. In order to show this, they start with a methodological strategy of bracketing the artistic dimension of visual art so as to concentrate on the embodied responses "…that are induced in the course of contemplating such works by virtue of their visual content" ([40], 197). This is reminiscent of Husserl's 'phenomenological reduction' with the authors making use of extracts from art reports in order to capture the first-person psychological level of bodily experiences. Their general idea is that art viewers are familiar with feelings of empathetic engagement. What does this empathetic engagement consist of, exactly?

> These feelings might consist of the empathetic understanding of the emotions of represented others or, most strikingly, of a sense of inward imitation of the observed actions of others in pictures and sculptures ([40], 197)

Freedberg and Gallese illustrate these points with various examples of artworks. Michelangelo's unfinished slaves are famous for the powerful impression they make upon the viewer of struggling to free themselves from the marble. The 'Awakening Slave', for example, evokes the impression of contorting and stretching his limbs and muscles by almost exploding out of the stone block. This can lead to a felt activation of those parts and muscles of the observer as being within the sculpture itself. The same pertains to Goya's *The Disasters of War*. Contemplation of these pictures leads, according to the authors, to bodily empathetic reactions to the emotional consequences of the way the depicted bodies are abused and tortured. What is of significance is the fact that those bodily responses are not confined to representational art but can extend to abstract art such as Pollock's *action paintings* or Fontana's works of *Tagli* (canvass that has been cut) that are iconic for his gestural aesthetics. This approach seems to come close to Dufrenne's interpretation of artwork as a self-manifestation of the creator's intentions and expressive attitude that leads to an intensification of feeling by means of affective qualities. But what is special in Freedberg's and Gallese's phenomenological description is the further elaboration of the emotional participation of the art viewer:

> Even when the image contains no overt emotional component, a sense of bodily resonance can arise. These are all instances in which beholders might find themselves automatically simulating the emotional expression, the movement or even the implied movement within the representation ([40], 197).

It is far from clear that anything like that occurs in conscious observations of the mentioned artworks (or what they represent). That there is a phenomenally felt co-performance in visual art perception as a direct bodily response of the subjectively lived body towards art objects is undisputable. However, it does not follow that this should amount to an automatically driven simulation of the emotional expression of artwork at the personal level. This latter view is part of the currently very popular simulation theory of intersubjective understanding which Freedberg and Gallese project onto the aesthetic dimension of perception and emotion. The idea is, roughly speaking, that one attempts to put oneself into the mental state of another person and to generate from this basis – according to some psychological mechanism – some ascribed new mental states.

Gallagher, for instance, has raised several convincing objections against this theory. I just want to mention one which he has called the 'simple phenomenological argument' that can also be applied with some adaptation to our example of the art viewer ([41], 356). If we reflexively consult our aesthetic experience, we will not find that those simulating processes entirely constitute and exhaust our aesthetic experience. The world of aesthetic objects consists not only of represented items and processes of the objective world, but unfolds an expressive meaning that cannot simply be reduced to a representation or simulation of the latter ([31], 197). This does not amount to the claim that empathetic-based simulation processes are unimportant for aesthetic experiences. But it is far from clear that those simulations are, without further qualification, the experiential and emotional foundations of art experience. One reason for the conceptual confusion is that Friedberg's and Gallese's

account of aesthetic experience does not do justice to the fact that there is a significant difference between the experience of real subjects in the sense of everyday life and what Dufrenne has called the aesthetic experience of an aesthetic object as a quasi-subject (see also Gallagher [42]).

Apart from that, Freedberg's and Gallese's main thesis is, of course, that the simulation is *realized* by a network of mirror neurons and therefore takes place at the subpersonal level:

> We propose that even the artist's gestures in producing the art work induce the empathetic engagement of the observer, by activating simulation of the motor program that corresponds to the gesture implied by the trace ([40], 202).

As I have already pointed out in the proceeding sections, I regard the discovery of mirror neurons as a major experimental contribution to a deepened understanding of an enactive sensorimotor-based approach to cognition and aesthetic experience. The felt active co-performance of another's action in aesthetic experience is a very important starting point for front-loaded enactive research projects. Recent neuroaesthetic research with a specific focus on dance has indicated – with explicit reference to mirror neuron systems – the possible fruitfulness of those insights for front-loaded enactivism within the field of experimental aesthetics ([43], 920; [44]). What is important, however, is to highlight the problem of ascribing to the brain a simulating capacity. The brain does not simulate anything; it cannot perceive and perform an "as if action" because it is not an intentional agent [38]. The threat of an implicit homunculus fallacy is obvious. One alternative interpretation of the function of mirror neurons conceptualizes it as a sensorimotor resonance phenomenon inside the brain that is based on a prereflective co-performance of the directly perceived action. But even if this is the case, one may not simply equate this function with the neural correlates of *aesthetic experiences*. However, clarifying these aspects requires further empirical and phenomenological explorations which fall outside the scope of this paper.

Conclusion

It has been my aim to show in this chapter to what extent neuroaesthetics can and *should* be regarded as an enactive enterprise. Freeman's neurodynamical model of intentionality and emotion and phenomenological-based theories of aesthetic embodied experiences generate important insights into how a highly advanced but "disembodied" psychological model of aesthetic experience such as Leder's can acquire a foundation in an embodied approach to cognition and emotion. As the last section should at least indicate, those insights are also becoming more and more important in recent neuroasthetic research. This may not hide the fact that the future prospects of enactivism for an interdisciplinary neuroaesthetic research program still need further elaboration so as to initiate and frame more 'front-loaded' enactive neuroaesthetic studies in the multifaceted domains of art reception and production.

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Chapter 15
Aesthetics as an Emotional Activity That Facilitates Sense-Making: Towards an Enactive Approach to Aesthetic Experience

Ioannis Xenakis and Argyris Arnellos

Abstract Nowadays, aesthetics are generally considered as a crucial aspect that affects the way we confront things, events, and states of affairs. However, the functional role of aesthetics in the interaction between agent and environment has not been addressed effectively. Our objective here is to provide an explanation concerning the role of aesthetics, and especially, of the aesthetic experience as a fundamental bodily and emotional activity in the respective interactions. An explanation of the functional role of the aesthetic experience could offer new orientations to our understanding of embodied cognition and of aesthetics as a fundamental part of it. We argue that aesthetic experience, especially its emotional dimension, is an evaluative process that influences the anticipation for stable and successful interactions with the environment. In other words, aesthetics facilitates sense-making as they affect what might be anticipated by an action tendency with respect to an environment.

Keywords Enactivism • Sense-making • Emotions • Embodied mind • Human experience

On the Nature of Aesthetic Experience

The conception of the 'aesthetic' has always been attracting thinkers from philosophy, psychology and more recently from neurobiology. From the ancient ages of Plato and Aristotle to the present, the understanding of the 'aesthetic' remains an ambitious and complex task within a more general attempt to analyze human

I. Xenakis
Department of Product and Systems Design Engineering, University of the Aegean, Syros, Greece

A. Arnellos (✉)
International center for advanced studies in theoretical biology, KLI Institute, Klosterneuburg, Austria
e-mail: argyris.arnellos@kli.ac.at

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behavior. In philosophical writings, which are the most influential in the study of the 'aesthetic', aesthetic experience has too many and mostly contradictory meanings concerning the processes that are related to perception and to evaluation of objects. Although aestheticians accept that the 'aesthetic' is connected to emotional phenomena, the role and the content of such experiences seem confusing even in contemporary writings. As Levinson [34] argues, the variety of those approaches suggests that there is indeed something puzzling about aesthetic emotions. For those following the Kantian tradition, aesthetic emotions have traditionally been characterized by *disinterestedness* and *purposelessness*. The 'aesthetic' is apprehended as an unintentional process (experience with no-purpose), and consequently, the agent must show no-interest in respect to the existence and the role of the object with which it aesthetically interacts [31]. This emotional pleasure, which leads to beauty, should not be based on any kind of interest that may have its origin on bodily reactions [16]. Accordingly, aesthetic emotions should not involve any purposive cognitive process or other feelings that could relate such experiences with senses [60].

In such philosophical tradition there is a puzzling division in emotional experience: the ordinary experience of pleasure, which is related to bodily reactions, and the aesthetic, which is mental. This argument is also extended to the understanding of beauty and to the assignment of aesthetic values. According to Bahm [3], every aesthetic emotion of pleasure is somehow directly related to beauty, and as such, aesthetic emotions and beauty are sharing an intrinsic value. Aesthetic value is irrelevant to the sensitivity an agent exhibits (or learns) by detecting objects. Aesthetic emotions provide values for their *own sake* and not for the sake of anything else that relates a physical attribute to a value. An aesthetic value demands imaginative realization and detachment from desires, needs and practical concerns that an agent could exhibit in interaction [12, 35].

Considering the above approaches as speculative and unclear, naturalism or pragmatism aims to explain the 'aesthetic' by linking its experience to the respective embodied processes that governs human nature. From a naturalist point of view, the 'aesthetic' is a product of interaction between the agent and its environment [20]. An aesthetic experience involves a reorganization of energies, actions, and materials, hence the physiological processes that constitute the 'aesthetic' are not limited to those concerning the interaction with works of art but they exceed in the coupling of the agent with any type of objects and environments. Moreover, the engagement in aesthetic experience is not only a matter of natural feelings that are somehow related to cognition, but it also involves the physiology of sensorimotor responses [58]. On this basis, Shusterman [53] introduces the notion of *somaesthetics* in order to describe the aesthetic experience beyond the dualism of aesthetic emotions and body. As he argues: "Somaesthetics connotes both the cognitive sharpening of our aesthesis or sensory perception and the artful reshaping of our somatic form and functioning, not simply to make us stronger and more perceptive for our own sensual satisfaction but also to render us more sensitive to the needs of others and more capable of responding to them with effectively willed action" ([56], p. 43). From a philosophical perspective, Shusterman argues that human beings aim to the 'right action' for which they need knowledge, self-knowledge and

effective will. Since action is a bodily process, the process of selecting the best action is also embodied. According to Shusterman, such selection is originated in somaesthetic awareness and control.

Then, in order to understand *the emergence of the 'aesthetic' in interaction* we need to explain the aesthetic experience in terms of natural needs and of the particularities of the respective embodied processes that take place during the interaction, and which can also be experimentally detected, tested and justified. Following this naturalistic perspective, the 'aesthetic' has exactly the same scope as all other activities; it works in the service of agent's well-being and it is particularly related to *selective activities* [30]. In this way, we consider the aesthetic experience as an embodied phenomenon directly linked to adaptivity. More specifically, we consider the 'aesthetic' to involve emotional processes, which are elicited in the service of agent's autonomy as it interacts with the environment within a context of insecurity, instability and uncertainty [21, 50, 66–68]. According to this view, aesthetic experience is naturally engaged when agents interact both with, in general, uncertain physical and cultural contexts. Particularly, physical objects are aesthetically experienced not as mere objects, but as conditions that are emotionally evaluated by the agent in order to support actions or meanings that could reduce the interactive uncertainty [64, 66]. Hence, no matter the way in which an interaction is culturally mediated, the aesthetic experience is ultimately grounded on the evolutionary development of the agent [57].

The reconceptualization of the 'aesthetic' as a process demands pragmatic explanations. In this attempt, and with a focus to investigate the underlying mechanisms, we consider aesthetic experience as emerging out of the structural coupling of an agent with its environment – as any other interactive outcome. The concept of structural coupling is a key element in the *enactive approach* [23] according to which sense-making emerges from the recurrent sensorimotor patterns that characterizes perceptually guided action [61, 62]. In this chapter, we argue that the 'aesthetic' in interaction is emerged in this structural coupling, when emotions, as adaptive processes, aid the agent in assigning values to interactive conditions, and as such, in bringing forth (in enacting) its situated environment. According to Thomson [61], this evaluation introduces attractiveness or repulsiveness to conditions and enables the agent to behave accordingly. Our aim is to suggest and discuss some of the characteristics that should constitute a naturalized description of the aesthetic behavior.

In this direction, the present chapter is organized so as to explore two domains in which the aesthetic experience could be described. The first domain refers to descriptions concerning the agent's organization and the composition of its various subsystems engaged in an aesthetic experience. Particularly, our aim is to describe how the basic aesthetic emotions of pleasure and pain are elicited, and how they contribute to the generation of meaningful patterns of activity serving the autonomy of the agent. The second domain is derived from the first and concerns the implications of these aesthetic outcomes in adaptive behavior, when the agent is prepared for various forms of coupling with its environment. Considering the aesthetic experience as a regulatory process that tightly interconnects brain/body and environment, our argument is that aesthetic experience prepares the agent to act by

facilitating the formation of adaptive motor activities. Aesthetic emotions are evoked during this preparation and signal the agent to avoid all those situations that exhibit a high degree of uncertainty and to bring forth and interact with those that are evaluated as being closer to goal fulfillment. In other words, aesthetic experience facilitates the agent in the resolution and reduction of interactive uncertainty, and consequently in fostering the enaction of a meaningful environment.

Sense-Making and Values

Autonomy and adaptivity (appropriate regulation) are both necessary in order to achieve sense-making. Generally speaking, an autonomous system is one that continuously produces the components that specify it. At the same time, the system is organized as a network of processes, which continuously regenerate and realize the network that produces them, and in this way, it also differentiates itself from the environment that interacts [36]. Autonomous systems are operating far-from-equilibrium, therefore, they are open to their environments, not only as a fact but also as a matter of their ontological necessity. Cutting them off from their environments results in loss of their recursive self-maintenance [7]. This means that autonomous agents in general cannot be inactive. They always have to act in order to maintain their organizational autonomy.

In a very general but also fundamental way, adaptive agents should at least be able to sustain and monitor a certain range of external perturbations and to compensate for them based on internal changes. In other words, agents should have the capacity to regulate themselves with respect to the boundaries of their own viability, namely, they should be "tolerant to challenges by actively monitoring perturbations and compensating for their tendencies" ([23], p. 438). This is what adaptivity is all about. The agent should exhibit ways to regulate its states always in relation to the environmental conditions by evaluating when these states serve the maintenance of its viability. As Di Paolo states "adaptivity allows the system to appreciate its encounters with respect to this condition, its own death, in a graded and relational manner while it is still alive" (p. 439). In this terms, agency in general and adaptivity in particular are framed within a context that emphasizes their negative tendency, a tendency of states to approach the proximal limits of viability.

However, some agents are motivated in the course of interaction to preserve their autonomy in a different way, or/and even to enhance their autonomy, and to satisfy their preferences [2, 5]. We would like to emphasize this complementary point of view, according to which agents do not only appreciate things in respect to a negative tendency, but on the contrary, they appreciate the conditions that lead them to viability; i.e. every interaction is appreciated/evaluated on the basis of a primitive truth-value (see also [9]). This means that an engagement in a certain interaction could be appreciated positively or negatively with respect to its conditions, but in both cases the agent considers the appreciation optimal for its goals. However, this truth-value could be falsified in case of interactive failure. Thus, an agent should have the infrastructure to detect the interactive error. This is fundamental to learning,

and enables agents to count on previous experiences in order to enact 'safer' meanings in their future interactions. To go one step further, the problem of sense-making should not only be considered as relying on the fact that agents should do something rather than nothing and thus cease to exist. From the perspective we adopt here, the emergence of sense-making relies also on what makes agents do one thing rather than another. Roughly speaking, sense-making is the process through which the agent selects the way of interaction that could be the most appropriate for its own viability, and in consequence, for its autonomy.

Adaptive autonomous agents engage in interactive cycles with their environment [5]. These interactive cycles provides agents with the ability to create new distinctions (actions) based on previous ones, to *evaluate* their distinctions, and to increase their autonomy by creating new meanings. Therefore, sense-making has an intrinsic dimension of bringing forth significance and value [61]. This value is generated from an evaluation process by which the agent appreciates the potential implications of a future interactive state according to present conditions (anticipation). Through its anticipation, the agent, in a way, 'generates an understanding' of the appropriate conditions and of the interactive alternatives (action tendencies) that could be valued as appropriate for its own viability. Therefore, anticipation becomes ways of interaction. Such potential actions (enacted meanings) have always the possibility of failure as manifested in cases where the chosen action has not the anticipated results [2].

What we have described so far should be considered as a part of a *preparatory process* for further interactive potentialities together with the agent's ability to detect when those preparations fail to be met [7]. Those preparations are directly related to adaptations of the body to support an intentional motor activity [24]. As we argue in the next sections, aesthetic experience, and particularly, aesthetic emotions, are elicited in such preparations, and allow agents to avoid all those situations that exhibit a high degree of uncertainty (risky situations), and to seek for those that will lead closer to goal fulfillment.

It is important to note that not all agents have access to such operational mechanisms, through which they are able to distinguish the different implications of potential paths of encounter with the environment (ways of interaction). Furthermore, agents achieve different degrees of sense-making according to their organizational complexity and the diversity of the respective counteracting mechanisms. In higher cognitive agents such as humans, for instance, sense-making involves complex self-regulatory bodily mechanisms. Our claim is that a basic aesthetic emotion of pleasure and pain is such a mechanism that evaluates the effectiveness of the potential or chosen interaction, thus influencing and being directly related to the agent's adaptive behavior.

Aesthetic Emotional Values in Sense-Making

Sense-making requires the assignment of a value by which the agent judges a situation as beneficial or harmful according to its purposes [63]. In order to do so, the agent must be able to recognize in the respective interactive conditions the virtual

tendencies that are related to the enhancement, decrease or potential loss of its autonomy. This awareness allows agents to bring forth significance and value, which implies that agents should be capable to evaluate and act. This is the basis for normative sense-making, according to which the agent regulates its coupling with the environment.

This explanation prompts the questioning of the nature of these normative values that find their origin in self-sustaining, operationally closed processes. This body of theory that attempts to understand and explain these value-generating processes has always been a major challenge for cognitive science [23]. From an enactivist point of view, embodied values are a fundamental aspect of all sense-making. Such values are produced by somatic states that signal (mark) the agent with respect to various interactive possibilities [18, 58]. Considering sense-making as the process by which the agent evaluates the consequences of an interaction for the conservation of its own autonomy, the question is: *how a value characterizes the experience as 'aesthetic'* and *how is such a value related to emotions of pleasure and pain*, a relation with which almost all theorists working in the field of aesthetics seem to agree (see e.g. [21, 28, 31, 34]).

An interesting argument that comes from the domain of aesthetic philosophy is one that segregates the emotional value from feelings and sensual experiences. The argument is that positive and negative aesthetic values are not necessarily linked to positive and negative feelings or sensual experiences, correspondingly. There are positive values, which can be present in aesthetic experience without the existence of pleasurable sensual experiences. Sensual pleasure can be absent from an experience that is positively valued, and respectively, a negative sensual experience can give rise to a distinctive form of a positive aesthetic value [55]. This means that, in a way, agents assign aesthetic values to situations with respect to how they anticipate these situations will influence their own adaptation toward their goals. Therefore, in aesthetic experience, anticipation could also exceed the prospects of viability. This could explain how a physically self-destructive action could deliver pleasure to some people. In other words, an interactive situation or an event is evaluated by the agent according to the implications it anticipates to have on the conservation of its own identity. In general, we could say that aesthetic experiences should be considered all those bodily activities that deliver emotional values (positive or negative) to the agent. At this point, and in order to provide a better understanding for this adaptive value-generating process by which agents, and especially humans assign aesthetic values to artifacts or events, the understanding of the role of aesthetic emotions in interaction seems necessary.

Almost all emotional theorists claim that basic emotions of pleasure and pain exert a strong influence upon the agent's goals and on its respective biological needs [11, 37, 45, 51]. Roughly speaking, an abstract description of emotions normally consists of a type of processing that analyses a stimulus, and then, through an evaluative process, it signals other mechanisms that control actions and plans [6, 18]. Emotions are processes that detect opportunities and threats, and the existence or not of a solution, but they barely answer to what the system should do in a given interaction. According to Bagozzi et al. [4], "emotions function to produce action in a way

promoting the achievement of goals" (p. 2). The relationship between emotions and goals is neither automatic nor direct. Emotions emerge from the prospects for goal success or failure and their intensity is a crucial aspect that influences the potential motivation to pursue that goal [48]. Hence, we can argue that such basic emotional activity plays two major roles; firstly, it notifies the agent to move towards the incentives and away from threats, and secondly, through an elaborated feedback system, it compares and rates signals that correspond to the progress the agent is making against a reference rate. It is the error signal of these processes that is manifested as an emotion. If the rate of the signal is either too low or too high, it produces a negative or positive value, correspondingly. In the case of an acceptable rate, no value occurs as an immediate result of the evaluation of the signal [13, 14]. In other words, emotions with a positive value (euphoric) are associated with the attainment of a goal, and they lead to decisions that allow the agent to continue with its current plan. In contrast, emotions with negative value (dysphoric) emerge when the agent has problems with the ongoing plans and fails to achieve the desired goals [4].

Thus, emotional activity could be considered as an adaptive process by which the agent generates values. We think that the notion of 'value' is more suitable than that of 'valence' to describe all those dynamic multidimensional types of organization that influence the emergence of action possibilities. As Colombetti [17] argues, "the main problem with the notion of valence is that it is typically characterized as a dimension whose poles are mutually exclusive, which logically rules out the possibility of conflicts and mixtures. Yet our life is dominated by mixtures and ambivalences – something that depends on the coexistence of different values and meaning generating processes in complex organisms" (p. 160). According to Pugh [43] emotions must be classified as values. Adaptive systems "try to avoid situations where the valuative signals are negative (or aversive), and it will seek situations where the valuative signals are positive (or rewarding)" (p. 60). Those positive and negative values signal all those mechanisms that constitute sense-making, thereby facilitating the agent to reconsider the existing goal structures in order to reconstruct new action plans. Thus, aesthetic values of pleasure and pain are not properties of the environment. The 'aesthetic' is not a characteristic of the artifact (or of the environment) but emerges as the agent interacts with it. Our body generates pleasant or unpleasant aesthetic values in response to those aspects of the environment that could be a consistent benefit or threat to our autonomy. Through emotions the agent has adapted a way of anticipating bodily movements in order to engage in safer and faster responses [42]. This means that aesthetic values are generated not only in response to an actual goal achievement, but also in response to anticipated actions, thus giving to aesthetic experience a future-oriented perspective [19, 24, 66–68]. Therefore, by the term 'aesthetic pleasure', we refer to emotional reactions with positive values, which are associated with a positively valued anticipation of the plans (provision and selection of actions with the environment) of the agent, with respect to the fulfillment of its goals. In contrast, by the term 'aesthetic pain', we refer to those emotional reactions characterized by a negative value, which emerge when the agent anticipates problems with its plans for the fulfillment of its goals [64, 65, 67, 68].

According to Pugh [43] and Rolls [48], these valuative signals could be related to experience in a very simple and direct way (pleasure and pain), or in a very complex and implicit one (joy, excitement, happiness, etc.). Their intensity could determine the relationship between motive and action, thereby generating a valuative experience of high complexity (e.g. aesthetic appreciation), which motivates human social behavior to be related to certain types of socio-cultural expressions (e.g. appreciating or even making/creating/producing art). We have argued elsewhere [67, 68] with respect to the occurrence of two fundamental levels of aesthetic value-generating processes, where the first takes place in a visceral (non-conscious) manner having strong underlying motivational substrates, while the second presupposes evaluations with stored information, schemata and expectations of the agent even for the simplest perturbation that elicits emotion. Under this conception, we could also argue for three properties that characterize the 'aesthetic' in interaction: (a) the 'aesthetic' (even for values with the same valence) exhibits qualitative differentiations (grades of intensity), which are causally dependent on the dynamic character of the value-generating processes, (b) the 'aesthetic' is embodied in every level of the experience, denoting that in each of these levels bodily states are related to several types of action [42], and (c) an aesthetic value is incorporated automatically in the anticipatory system of the agent during sense-making [43].

Considering that aesthetics facilitates sense-making, and as such, they co-regulate the formation of what we might anticipate by an interactive outcome, in the next section we suggest that agents experience the 'aesthetic' in the course of interaction, when their preparation for further interactive potentialities (i.e. for action selection) is characterized by uncertainty.

The Aesthetic Experience Reduces the Interactive Uncertainty

In everyday activities, agents stand in front of many complex decisions, for the most of which they are not aware of their direct consequences. In fact, agents live and act by knowing only something about the future; while the problems of life and its manipulation arise from the fact that the available information needed to handle those problems is often uncertain [33, 69]. Thus, surviving in those dynamic conditions depends on the ability of the agent firstly to anticipate how an interactive situation could affect its autonomy, and secondly, to decide which action (or set of actions) from those that seem available is the 'most promising' for the specific goal. The 'most promising' aspect denotes that anticipation, and thus the enacted meaning, has always a primitive truth-value (e.g. engage or not to a particular interaction with the environment, always with respect to the current goal of the system) as an implicit predication about the appropriateness or not for the interaction. Therefore, the primitive truth-value that characterizes the content of the enacted meaning could be influenced from the evaluation outcomes of each interactive alternative (which may be aesthetically valued in a positive or negative way), but its value is always truth (i.e. either engaging or avoiding a particular interaction would be beneficial for

the agent). However, as already mentioned, there will always be the possibility that this primitive truth-value is false [2, 7, 8]. For instance, while, under specific conditions, the interaction of an agent with its environment results in a negative or positive aesthetic valuative signal that influences sense-making, the agent in both cases enacts by accepting that the selected action (whose selection has been influenced by this aesthetic value) is compatible to its goals (truth-value). However, the result of the selected action may finally be proved unsuccessful, as in cases when the new interactive state differs from the one that it was initially anticipated. This means that a system that detects when this truth-value is falsified is necessary. From our point of view, this precariousness of sense-making is related with the risk of interactive error thus providing the interaction with an uncertain character. This is what we here call *interactive uncertainty* (see also [7]).

This detectable interactive failure enables agents to learn from their unsuccessful interactions thus enhancing their adaptability with respect to the same or similar situations. As we mentioned in the previous section, *preparations* combined with the ability of the agent to detect when those preparations have failed are fundamental for sense-making. When everything goes as anticipated the agent does not need to learn [10]. Learning requires output and error feedback, and it is the only process by which the agent could effectively handle and eliminate the interactive uncertainty [7].

The problem that still remains regarding the reduction of interactive uncertainty is that knowledge is not always available to the agent. This means there are situations, where the agent is motivated to act before learning. Then, the agent should have the necessary interactive variety (i.e. an adaptive anticipatory system that operates before learning) in order to be able to evaluate whether the current interactive conditions initiate a deviation or not from a desired state, and to act accordingly [41]. Hence, this anticipatory system should operate so as to both motivate and facilitate the agent to resolve the interactive uncertainty and to proceed in the active generation of a meaningful environment (i.e. to enact). This motivational tendency is a creative process through which the agent approaches new solutions, and enacts new meanings [1]. As we have argued so far, aesthetic emotions provide the agent with the capacity to enact even before learning, by assigning values to current interactive conditions as provisions of the enacted meaning. Thus, aesthetic experience motivates the agent to avoid situations, for which the valuative signals are negative (or aversive), and to seek situations for which those signals are positive (or rewarding). This is what we call *motivational tendency of aesthetic experience*. Accordingly, we suggest that *a minimal aesthetic experience* should be considered as *an aesthetic emotional evaluation that forms an anticipation for a certain interaction, thereby reducing the interactive uncertainty*.

There are several recent neurological evidences that support this hypothesis. Relevant studies have showed that there are several operations that are simultaneously taking place in various interconnected areas of the human brain during an aesthetic experience, in particular, or/and during other anticipative/evaluative interactions in general. These studies suggest that humans anticipate the impact of future behavioral choices on the basis of reward values, using processes that

involve the amygdala, which is mostly known for emotional processing during an aesthetic experience [22, 44], as well as areas in the prefrontal cortex (PFC) [26]. Moreover, both the amygdala and the orbito-frontal cortex (OFC), which is also activated in most of the studies related to aesthetic experiences [15], are extremely well positioned to tune perceptual processing in sensory cortex based on stimulus evaluation [40]. Dysfunction of OFC is associated with disturbances in motivation and an inability to anticipate interactive consequences, leading to maladaptive behavior [52].

Additionally, experimental results suggest a reciprocal interaction between motor responses and regions that have often been associated with a variety of emotional states. These are the orbito-frontal cortex (OFC) and a widespread network of interconnected cortical regions that are activated during an aesthetic experience [32]. According to this evidence, it seems there is an important connection between the experience of the 'aesthetic', emotions and motor functions. It is also important to note that during the evaluation of sensory input, emotional and cognitive processing in these areas cannot be separated [40]. For instance, the PFC receives highly processed and integrated sensory information, which is useful to the agent for more abstract processing (i.e. higher order meaning making processes). Simultaneously, fast processing of emotional valuative signals relies on multiple, parallel cortical pathways that rapidly convey information to the amygdala and other evaluative sites such as the OFC [39]. The generally accepted view is that emotional signals are elicited so as to prepare the agent to enact in the sense that such signals facilitate action-selection during the development of strategies for the reduction of its uncertainties [27, 40].

Recently, Ishizu and Zeki [29] have claimed that the activity in medial orbito-frontal cortex (mOFC) is also correlated with the aesthetic experience, and particularly, with pleasure and reward, whether it is real, imagined or anticipated. In that sense they argue that: 'Beauty is, for the greater part, some quality in bodies that correlates with activity in the mOFC by the intervention of the senses' (p. 7). Accordingly, they argue that the positive aesthetic experience is strongly linked to values of reward and pleasure. In other words, for Ishizu and Zeki "beauty is a value", and value evokes desire. For them, the tension to place 'beauty' more in the agent than in the object is in accordance to our consideration of the 'aesthetic' as an emotional evaluation that is evoked during the agent's interaction with its environment.

Therefore, there should be a link in the cortical processing that is related with value, desire, and beauty, and there might be a sub-system in the brain that assigns those values. According to Grabenhorst and Rolls [25], neural activations in OFC and in adjacent anterior cingulate cortex (ACC) are correlated with the subjective pleasurable values produced by many different stimuli. They particularly argue that the OFC projects to ACC information about the valuative signal of pleasure (reward). The ACC brings together information about actions, and values that derive from the implications these actions may have for the agent. This process associates actions with a value of their anticipated outcomes, thereby facilitating the agent to select the best possible action. This is in accordance to our consideration of an aesthetic value

as an influence (affection) to the anticipatory system, which contributes to sense-making. The ACC has strong connections to motor areas, and it is activated while the agent cognizes actions and outcomes, including values that predict errors or effort costs with respect to those actions. Negative emotional values (punishers) form negative predictions when the anticipated outcome is not in accordance with the agent's goals [25, 40].

Based on results from the works of Hampton et al. [26] and Pessoa [40], the OFC's role in anticipating future events extends to the amygdala, which is likely to receive error signals concerning the input stimuli with respect to agent's goals. Also, according to Paton et al. [38] the amygdala may be essential in creating updated 'representations' of values. As Pessoa argues, the circuit (OFC-ACC-amygdala-OFC) indicates that the processing related to the cost/benefit analysis of the potential implications that the current interactive state will have for the agent, is emotional or affective. Each time the agent uses these processing circuits, better predictions are being made, and the perception of the object is getting less and less uncertain, while at the same time the agent enacts more and more functional meanings [59].

What is important with respect to our argument is that several studies show that the primate OFC is involved in the processing of unlearned interactive conditions. The OFC provides valuative signals with respect to these conditions, thereby facilitating the agent to make the most positively reinforcing choice that is currently available. Additionally, the OFC is associated with the history of values received in previous trials, making this region important for learning a value related to an action. Either a situation is known or unknown to the agent, those OFC-related processes are influencing the conscious control system, which, together with its long-term planning algorithms can evaluate which action should be performed next. Therefore, the OFC has important functions in motivational behavior and in emotional and social behavior [46–49].

Conclusions

We have argued that aesthetic experience originates in the adaptive processes of action selection. Adaptive behavior requires the ability to make advantageous decisions by anticipating the possibility of future success. However, the virtual falsification of anticipation introduces uncertainty in interaction. What we experience as 'aesthetic' is a valuative emotional process that reduces the interactive uncertainty so that the agent is able to prevent the interactive error, even before learning is possible. Agents generate aesthetic values under uncertainty in response to those aspects of the environment that could be a benefit or a threat to the conservation of their autonomy. These aesthetic emotional values influence the anticipatory system and facilitate the agent in action-selection.

(continued)

Therefore, aesthetics are more than just another aspect of cognition pertaining to the appealing nature of events and states of affairs. Considering the aesthetic experience in a wider sense than that of mere application of values related to beauty and to ugliness, aesthetics provide values that could characterize situations that emerge through embodied interactions. Our claim is that these aesthetic values are related to the world of the agents not as an external realm, which is specified or represented in their brains, but as emergent and enacted in their own cognitive and emotional domains, while they try to actively adapt to their environments. Overall, we have suggested that aesthetic values, through their embodied emotional basis, reduce the uncertainty of an action tendency thus facilitating sense-making and the constitution of meaning in general.

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Chapter 16
Enactive Literariness and Aesthetic Experience: From Mental Schemata to Anti-representationalism

Alfonsina Scarinzi

Abstract The aim of this chapter is to challenge the current cognitivist view of literariness in cognitive literary theories, according to which literariness in the reader's interaction with literary texts is constituted when a linguistic deviation from the reader's expectations has the cognitive function to alter and to change the reader's mental schemata making the mind better equipped for processing in future. In this chapter I reject this cognitivist notion of literariness because of its dualistic approach, its disembodied view of the mind and hence because of its phenomenological and enactive implausibility. In developing an enactive notion of literariness that takes into account the embodied mind thesis and hence the view that cognition is embodied action I discuss the role of anti-representationalism in enactivism and answer the question of how anti-representationalism can contribute to a conceptual shift from *cognitivist literariness* to *enactive literariness*. My claim is that in the experience of literariness a visceral bodily pattern of organism-environment coupling that constitutes the reader's embodied meaning is defamiliarized and refamiliarized creating in this way the reader's consummatory experience of the embodied process of sense-making of deviations from expectations.

Keywords Enactivism • Embodied mind • Dewey • Phenomenology • Literariness

Introduction

In literary theories the notion of literariness introduced by the Formalist Roman Jakobson in 1921 is still considered to be a useful conceptual tool to investigate the difference between literary texts and non-literary texts or literary communication

At Georg-August Universität Göttingen I started my research on Mark Johnson's work.

A. Scarinzi (✉)
EUCogIII, European Network of Excellence, London, UK
e-mail: alfonsinascarinzi@googlemail.com

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and non-literary communication [5, 18, 25]. Even if it was introduced into literary studies as a pure linguistic concept, it was revisited over time following cognitivist approaches to the human mind within the so called cognitive turn [10, 29] in literary studies. It was transformed into a matter of reader response coming into being in the interaction between the striking stylistic devices, which characterize a literary text, and the reader's cognitive processes and feelings [15].

The rising of the enactive approach to human cognition and experience [28], which represents an anti-dualistic alternative to cognitivism, calls for questioning the plausibility of the cognitivist premises of the approach to literariness as a matter of reader response.

The aim of this chapter is to discuss the possibility of recasting the notion of literariness within the anti-representational framework of enactivism [11, 12, 30] and to develop an enactive account of literariness.

In this contribution I will radicalize the current account of literariness, which represents a matter of reader response arising in the interaction with the striking stylistic devices of a literary text. I will reject the representational approach used in the study of literariness in the classical cognitive approaches. I will claim that literariness can be considered to be the lived aesthetic quality of the reader's consummatory experience of the embodied process of sense-making of the reader's deviation from expectations she brings forth in the interaction with the striking stylistic devices of a literary text. I will argue that literariness as aesthetic quality of the reader's consummatory experience depends on and is determined by the reader's conscious access to her aroused lived body (cf. [22–24]).

In what follows I first outline the cognitivist approach to literariness and its implausibility. I will then develop an anti-dualistic enactive approach to literariness and propose a shift from *cognitivist literariness* to *enactive literariness.* I will further develop this point following John Dewey's anti-Kantian view of aesthetic experience (cf. [7]) I have discussed in Scarinzi [23] following the anti-dualistic framework of enactivism.

Literariness and the *Cognitivist* Cognitive Turn in Literary Studies: The Implausibility of an Elective Attraction

The aim of this section is to answer three questions: (1) what is literariness?; (2) what is the cognitivist approach to literariness within the cognitive turn in literary studies?; (3) why is it implausible in the light of the rising enactive approach to human experience and cognition?

According to Roman Jakobson literariness, also called the poetic function of language, is a linguistic phenomenon which is not limited to the field of poetry. It is the dominant function of language in verbal art, while in all other verbal activities it is an accessory constituent. It can be described as the function of language to make strange, to defamiliarize, and hence to deviate from the reader's expectations through an unusual use of verbal devices. The Russian Formalist Shklovsky, for

example, considers such a deviation from the reader's expectation to be the necessary artificiality that creates art. It makes an object perceivable from an unusual perspective and hence from a new point of view. In non-artistic verbal activity it reinforces the impressiveness and efficacy of the message. Tsur [29] gives the following example of defamiliarization as the effect of making strange in non-artistic verbal activity:

– *Mum, is dad not ready to eat yet?*
– *Shut up, I have just told you, he's not tender enough yet.*

The link that seems to exist in the works of the Formalists between the poetic function of language and the cognitive activity of the reader has led scholars in literary theories to ask the question of how it can be explained and investigated from a cognitive perspective. They have taken the road of classical cognitive science in order to attempt at finding out how poetic language and form and the critic's decision or more generally the reader responses to literary texts are shaped and constrained by human information processing [5, 25, 29]. This is also called the cognitive turn in literary studies. Within the cognitive turn the effects of literariness as poetic function of language on reader response have been explained in terms of mental schemata. A mental schema is a form of mental representation for generic knowledge, a data structure for representing the concepts stored in memory. It is a concept borrowed from representational cognitive science (cf. [6]).

In his work *Discourse and Literature: The Interplay of Form and Mind* Guy Cook [5] argues that

> While any interaction with new experience or text may […] effect changes in schemata while simultaneously using them in processing, there may also be experiences and discourses whose primary function is to alter schemata making the mind better equipped for processing in future. […] Many works which are regarded as literary may stimulate this kind of relation.

Inspired by Roger Schank's research Cook uses the notion of mental schema and goes a step further ting it to the poetic function of language as deviation from expectations. He claims that schema refreshment can be considered to be the cognitive function of literariness as poetic function of language in literary texts. According to Cook [5], literariness is given when language deviation from the reader's expectation challenges the established schemata in the reader's knowledge structure causing a schema disruption that leads to a change of the established schemata and hence to schema refreshment. In other words, literariness as a cognitive phenomenon gives the readers the opportunity to reorganize their mental schemata and their knowledge about the world through the interaction with striking stylistic devices of linguistic deviation.

This way of looking at literariness has been criticized by Elena Semino [25]. Semino points out that reducing the cognitive function of literariness to mere schema refreshment implies that all texts that are considered to be literary have to be able to have a schema refreshment effect. According to her work, this is not plausible because it implies that all texts that are considered to be 'prototypical literary works of art' characterized by striking stylistic devices and that do not have a

schema refreshment effect have to be excluded from the category 'literature'. Semino's revision of Cook's notion of literariness consists in including into the characterizing cognitive effects of literariness not only the radical change of the knowledge about categories of the world in form of schema refreshment, but also all sorts of cognitive deviations from the readers' expectations that enable new connections between existing mental schemata in the knowledge structure of the reader changing the way the reader links or associates them with one another without changing the knowledge they represent. Semino's compromise remains as partial as Cook's position about literariness as a cognitive phenomenon. Both Semino and Cook completely neglect the role of feelings in the process of schema refreshment and its possible variations. Moreover, from my point of view, Semino [25] reduces the cognitivist approach to literariness to a sort of sterile categorization issue.

Without rejecting the use of the notion of mental schemata, which has nothing to say about feelings and emotions, Miall and Kuiken [19], on the contrary, acknowledge the central role of feelings arguing that feelings are the primary vehicle for the reader's reinterpretation of a defamiliarized concept through striking stylistic devices. The role they give to feelings makes the difference between their way of looking at literariness and the approach by Cook and Semino. Miall and Kuiken do not refer to a specific theory of feelings and emotions in their work.

The studies mentioned above can be considered to belong to cognitive poetics.[1] In cognitive poetics *literariness* as "organized violence against cognitive processes", as Tsur [29] in paraphrasing the slogan of the Russian Formalism describes it, has been formulated in the light of representational cognitive science. Unfortunately in this way cognitive poetics has confirmed the criticism of the cognitive turn by Adler and Gross [1]. According to them, the cognitive turn in literary studies represents only "old wine in new bottles", for it has been unable to create a novel approach to literary studies, limiting its scope to the reformulation of traditional notions using a new and unusual vocabulary for the field of literary studies. As a consequence of this, it has not been taken into account by traditional cognitive sciences (linguistics, neuroscience, philosophy of mind and psychology). In my view, if the role of cognitive poetics and hence of the cognitive turn in literary studies is just to borrow principles, notions and methods from cognitive science in an uncritical way in order to apply them in the field of literary studies, the criticism by Adler and Gross [1] can not be rejected. Unfortunately the field of literary studies seems not to be aware of this shortcoming. As a matter of fact, Louwerse and van Peer [17], for example, reduce the relevance of cognitive poetics for literary studies as well as the dialogue between literary studies and cognitive science to the appropriate selection of what to borrow from cognitive science and what not. I believe that such an approach to

[1] In cognitive poetics "[…] poetry exploits, for aesthetic purposes, cognitive (including linguistic) processes that were initially evolved for non-aesthetic purposes.[…]" ([29], 4). In the field of cognitive literary theories Tsur [29] defines the aims of cognitive poetics as follows: "Cognitive Poetics explores the possible contribution of cognitive science to Poetics: it attempts to find out how poetic language and form, or the critic's decisions, are constrained and shaped by human information processing". (1).

research in cognitive science is reductionistic. As a matter of fact, in simply borrowing concepts cognitive poetics is blind to the limits of cognitive approaches and hence it can not contribute to discussing and to further developing cognitive science. It can unwittingly include the limits and shortcomings of cognitive theories into literary studies in an uncritical way. I believe that literary scholars interested in a fruitful dialogue between cognitive science and literary theories should be advised against simply borrowing principles from cognitive sciences. This reductionistic attitude – this mere *going cognitive* – reiterates the "old wine in new bottles"-criticism and isolates cognitive approaches in literary studies. In order to be able to be fruitful, the dialogue between cognitive science and cognitive poetics needs to remain or needs to become a mutual exchange. I believe that literary theories, for their part, should be able to influence the development, changes and controversial debates about the human mind and human experience in the field of cognitive science.

Cognitive Literariness: The Implausibility of an Elective Attraction

The rising anti-representationalist approach to human cognition in cognitive science also called enactivism ([3, 12, 28, 30], 17–44) calls for questioning the plausibility of the notion of mental schema, which is a mental representation of knowledge, in the cognitive approach to literariness.

The notion of mental representation characterizes the cognitivist hypothesis. According to the cognitivist hypothesis, cognition consists in acting on the basis of mental representations of a pre-given world, which are physically realized in the form of a symbolic code in the brain. The representational view of the mind is considered to assume a radical dichotomy between body and mind creating a gap between the inner and the outer. In other words, it assumes that people think about ideas which are about things in a pre-given external world. Their representational content is about things in a pre-given world (see [13, 30]). The schema theory applied to the explanation of the cognitive effects of literariness supports exactly this dichotomy between the inner and the outer in literary studies. It conveys a disembodied dualistic view of the reader's cognitive processes in experiencing deviation from expectations.

What is wrong with mental representation such as mental schema? According to research in non-classical cognitive science, its 'copy view' of the mind makes it implausible. This is the idea according to which experience and cognition are constituted by the formation of passive, internal representations of outer scenes or experiences of a pre-given world, which presupposes a dualistic discontinuity between the body and the mind (see also [14]). As Mark Johnson [13] observes, "we should avoid using *representation* talk, because it tends to foster the illusion of inner mental space populated by mental quasi-entities (such as concepts, propositions and functions)". As Kirchhoff [14] points out, the rejection of mental representation and

of its dualistic disembodied consequences does not derive from arm-chair reflections. Empirical research in neuroscience, situated robotics, ecological psychology, developmental psychology, philosophy of mind suggests that there is no single center of thinking. This makes the idea of the existence of mental representations about the outside world implausible. Kirchhoff [14] formulates the two main arguments coming from empirical evidences against representationalism in the following way:

> The first of these arguments, the threat from nontrivial causal spread, occurs whenever the material vehicles of cognitive architecture are causally spread beyond the brain and nontrivially involved in the completion of cognitive tasks. The second of these arguments, the threat from continuous reciprocal causation, occurs whenever the causal contributions made by components of a system partially determines and is partially determined by causal contributions of other systemic components, thereby making it impossible to assign a specific subtask to an identifiable subsystem within a larger system.

In other words, thoughts, propositions, concepts and percepts can not be considered to be quasi-objects about an external pre-given world. Rather, they are in and of the world as patterns of experiential interactions of organism-environment couplings that constitute experience ([13], 117). A cognitive system is hence understood on the basis of its so called "operational closure", which means that the results of its processes are those processes themselves. In other words, a cognitive system does not operate by representations. Rather, it enacts or brings forth a world as a domain of distinctions according to its bodily structure.

Varela et al. [30] formulate this anti-representational principle as one of the tenets of enactive cognitive science. In the enactive approach to cognition living beings are considered to be autonomous and active agents. They follow laws set up by their own activity (autopoiesis). By coupling with the environment living beings or cognitive systems actively generate and regulate their structure by selecting from the environment their viable world (a region of the environment called "cognitive domain") that has relevance for the agent's structure and that is not pre-given but brought forth or enacted by that agent's autonomous mode of coupling with the environment [2, 9].

According to enactivism, the cognitive activity depends on the possibilities of action of the body because the mind is inherent in the active body [27, 28]. Sensory and motor processes, perception and action, are inseparable in cognition. Perception is considered to be perceptually guided action. Perception contributes to bringing forth the subject's own cognitive domain, the world of lived experience according to the perceiver's bodily possibilities of action. Cognitive structures emerge from the recurrent sensorimotor patterns that enable action to be perceptually guided. The mind, one' s knowledge about the world and linguistic meaning emerge as part of this activity. Hence, mind and body, the higher and the lower, are in a direct relation of continuity with one another and with the environment, which is not filtered by inner representations of the external world. Such a continuity means that the mind is distributed over body, brain and environment. It is shaped by the body and by its possibilities of action in bringing forth a perceived world. In this sense the mind is embodied. In pragmatist philosophy this is better known as *Dewey's continuity principle*. I shall come back to this point and its relevance for the development of enactive literariness and aesthetic experience in the next section.

The embodied premise that the organism's encounters with the stimuli of the environment are possible only by her preceding activity and movement which are part of a process in which an organism seeks to survive and grow within different kinds of environment is a rejection of the stimulus-response dynamics as well. According to enactivism, the subject does not respond to a given stimulus of the world. Rather, she actively selects her stimuli from the environment. Therefore, also investigating literariness in terms of reader response to striking stylistic devices seems to be misleading and to contribute to supporting the dualistic stimulus-response dynamics according to which the organism passively reacts to pre-given stimuli of the external world on the basis of internal representations to be activated.

Defining literariness in terms of reader response without the intention of supporting the dualistic view of the reader's cognition would require to make explicit the embodied premises of anti-dualistic approaches. The field of literary theory seems to be aware of the naturalistic embodied approach to the science of the mind, as the work by Peter Stockwell [26], for example, shows. But his work seems to remain hybrid, for on the one hand it acknowledges the continuity between body and mind as a theoretical premise, but on the other hand it clings to traditional cognitivist dualistic views of knowledge. As a matter of fact, Stockwell [26] refers to referents of meaning, which can be traced back to a pre-given world where the subject just picks up pre-existing knowledge instead of bringing it forth in active interactions.

Also the attempt at further developing cognitive poetics by discussing the role of cognitive linguistics as an embodied view of language in literary studies (cf. [17]) does not represent an attempt at developing an anti-representationalist embodied view of literariness using the current debates in cognitive science as a starting-point, for the embodied approach to language followed in literary studies presupposes the activation of the inner that represents bodily experiences we have with the world. Louwerse and van Peer [17], for example, refer to the activation of embodied representations such as icons and indices and talk about encoded embodied relations when in their contribution they make the point that symbolic language comprehension can be combined with embodied language comprehension to further develop cognitive poetics. From an anti-representational embodied point of view, in this case the use of two notions is problematic and misleading: 'activation' and 'embodied representations'. The idea of 'activating embodied representations' remains dualistic, for it refers to the idea of grounding the reader's stored knowledge (the representation) about the world in a pre-given external physical world. A clear example of the dualistic, representationalist and at the same time embodied nature of cognitive linguistics is the work by Zwaan and Madden (2005)[2] on embodied language. Even if they acknowledge the role of the sensorimotor experiences of the subject in the relationship between language and body, their approach remains representationalist and dualistic. As a matter of fact, they write:

> […] cognition in general and language comprehension in particular involve the activation and the integration of experiential traces in the construal of a situation. These traces are activated by linguistic constructs, which are experiential representations in their own right. Language can be viewed as a sequence of cues modulating the comprehender's attention to

[2] This work is available in Pecher, D. and Zwaan, R. A. (eds.) (2005) [20].

> a referential world, which is simulated by integrated experiential traces. (Zwaan and Madden 2005, 241 in eds. Pecher & Zwaan) [20].

Against this background, I consider speaking of 'embodied', 'embodiment' or of the relationship between bodily experiences and cognition not enough to contribute to developing an anti-dualistic approach to language and literary reading, for it does not imply a rejection of the copy view of the mind and of inner representations of a pre-given referential world.[3] In other words, it can only be considered to be an attempt at grounding language in physical processes but not an attempt at embodying the disembodied and representationalist mind.

Does the implausibility of representationalist approaches to human cognition mean that the use of the term *representation* has to be avoided? In Mark Johnson's ([13], 133–135) opinion it should be avoided, but this is an impossible undertaking. Nevertheless, its use should be restricted to indicate the patterns of a structure and not the copy of a pre-given world [13, 22]. This means that a notion of weak representation is acceptable. Varela et al. [30] formulate the weak sense of representation in the following way:

> We can begin by noting a relatively weak and uncontroversial sense of representation. This sense is purely semantic: It refers to anything that can be interpreted as being about something. This is the sense of representation as construal, since nothing is about something else without construing it as being some way. A map, for example, is about some geographical area; it represents certain features of the terrain and so construes that terrain as being in a certain way.

Even if cutting-edge research in cognitive science rejects representationalist approaches to human cognition, it seems to be acceptable to use the word 'representation' whenever we have formalisms that claim to capture the structure of something. Phenomenology, for example, uses the notion of representation (Vergegenwärtigung) in an anti-representationalist sense, meaning an experience where the object is given as absent and as mentally evoked, but not necessarily as re-evoked or called forth again ([28], 25). Representational experiences arise in relation to ongoing presentational experiences (the object is given as present in its very being) of one's surrounding. Inner and outer in this case too, like in the case of anti-representational enactivism, are mutually specifying domains in the interaction with the environment. This non-dualistic use of the word does not refer to an inner idea that copies an outer reality, for the outer reality is the world as experienced by an embodied subject situated in an ongoing organism-environment relationship, as enactive cognitive science claims.

In the following section I will recast literariness as a cognitive phenomenon within the naturalistic framework of enactivism. I will develop an anti-representational explanation of the phenomenon of experiencing deviations from expectations characterizing literariness by grounding literariness in embodied meaning.

[3] See Varela et al. [30] and Scarinzi [23].

Enactive Literariness: An Anti-representationalist Approach

It has become a commonplace in anti-representionalist and anti-dualistic research to use the term 'enactive' to refer to the understanding of cognition as based on knowing how and hence on understanding what enables us to move and to engage with the world we co-determine through our sensorimotor skills and abilities [12]. Hence, as Hutto [12] remarks, we know how to tie our shoes, to ride a bike, to play table-tennis without following propositional rules based on inner representations of knowledge about the world.

The attempt at defining literariness as enactive could appear as far-fetched and inappropriate, for literariness is mainly a stylistic linguistic phenomenon characterizing verbal artistic and non-artistic communication and having the cognitive effects of defamiliarizing. The active exploration of the environment to acquire knowledge and experience enactivism presupposes seems not to match with the conditions required to experience literariness.

A closer look to what the aim of enactivism is allows to better understand why literariness can be enactive. Enactivism conciliates phenomenology and cognitive science acknowledging that the phenomenological studies on the lived body especially can clarify and guide scientific research on subjectivity and consciousness [28]. The backdrop against which action and cognition in the environment as well as experience take place is the pre-reflective dimension of the perceptual and cognitive-emotional lived body. One of the tasks of the enactive approach to human cognition is to understand the lived body as a special kind of autonomous system, whose sense-making brings forth or enacts a cognitive-emotional phenomenal world. In this section I will focus on this phenomenological aim of enactivism. I will develop my anti-representationalist account of literariness I call *enactive literariness* by focusing on the role of the cognitive-emotional lived body in experiencing a deviation from expectations and in refamiliarizing a defamiliarized concept.

In the following I will claim that enactive literariness can be considered to be the reader's consummatory experience of the conscious embodied process of sense-making of a deviation from expectations she brings forth in the interaction with the striking stylistic devices of a literary text determined by her conscious access to her cognitive-emotional aroused lived body. I will then turn to explain why also the claim that *enactive literariness* is the lived aesthetic quality of the reader's consummatory experience of the sense-making process needs to be taken into account.

Towards Enactive Literariness

In research on literariness the term 'enact' is not novel. In their study on feeling and literariness Miall & Kuiken [19] refer to 'expressive enactment',[4] which indicates the phenomenological condition of actively living through a particular experience

[4] See also [15].

consequent on reading. It belongs to the reader's attempts at articulating the phenomena within the text that are found striking and evocative of feeling. In the following example expressive enactment can be illustrated using the passage of a poem by Coleridge used by Miall and Kuiken (*The Rime of the Ancient Mariner*):

> *Like one, that on a lonesome road*
> *Doth walk in fear and dread,*
> *And having once turned round walks on,*
> *And turns no more his head;*
> *Because he knows, a frightful fiend*
> *Doth close behind him tread. (Mariner, ll. 446–451)*

According to the empirical study by Miall and Kuiken [19], after exploring the feeling or theme of 'being alone' in the text, the reader's response unfolds in successive phases: initial awareness of a feeling with some personal relevance; the use of this feeling to locate a meaning for the poem; and the application of this notion to the position of the protagonist. Readers progressively transforming an affective theme across striking or evocative passages become implicated in the existential concerns embodied in those passages and experience a blurring of boundaries between themselves and the narrator. This is the phenomenon of expressive enactment, which is just one type of reading without any specific relation to literariness.

Without falling in the so called 'empirical fallacy' (see [3]) according to which the parts are more important than the whole, Miall and Kuiken [19] suggest that the key to literariness is the interaction of the component processes they mention in their definition of literariness:

> literariness is constituted when stylistic or narrative variations strikingly defamiliarize conventionally understood referents and prompt reinterpretive transformations of a conventional concept or feeling.

The authors' empirical studies indicate that feeling is the primary vehicle for the not necessarily conscious search for an appropriate context within which to locate or generate the new understanding of defamiliarized schemata. With reference to the representationalist schema theory, they point out that feeling initiates a process in which existing schemata become recontextualized, leading to new insights for the reader. The authors do not criticize the representational and dualistic character of schema theory. They just find a way to combine schema refreshment effects with feelings.

In the following I will reject the dualistic representationalist premises of the interactive notion of literariness by Miall and Kuiken [19] based on mental schema. Instead of using the notion of defamiliarized schemata I will refer to *defamiliarized* or *refamiliarized embodied meaning.* As I will show in the following, this is more appropriate in an anti-representationalist explanation of literariness. Even if I will combine 'enactive' with 'literariness' my use of the notion of enactive will be different from the one by Miall and Kuiken [19], for mine will be close to the enactive approach to the science of the mind.

In the remainder of this chapter I will recast the process of defamiliarization-refamiliarization within the enactive approach to human cognition and experience

by considering the phenomenological side of enactivism and by focusing on the role of the cognitive-emotional lived body [4].

Enactive Literariness: The Cognitive-emotional Role of the Lived Body and Bodily Sense-making

If mental schemata as mental representations of concepts do not exist, what can be defamiliarized and then refamiliarized in the interactive process of literariness? And under this condition how does the process of defamiliarization-refamiliarization take place? These are the guiding questions of this section.

As I mentioned in the previous section, in rejecting the notion of mental representation Johnson [13] suggests considering concepts and thoughts as patterns of experiential interactions, as structures of the patterns of organism-environment couplings that constitute experience. As it is well-known, such structures in Johnson's work are so called image schemas. These are basic recurrent structures of sensorimotor experience by which we encounter a world. They are mental and bodily, are realized in topological neural maps we share with other animals and in this sense they can be considered to be weak representations. Image schemas are considered to depend on the nature of our bodies and brains and on the environment we inhabit. They are preverbal and non-conscious, make possible that our bodily experiences have meaning for us and operate beneath the level of conscious awareness being part of the cognitive unconscious.[5] As our conceptual understanding is shaped by bodily experience, we have image schematic concepts which are projections accomplished through metaphorical and metonymical mapping procedures motivated by the structure of bodily experience ([13], 141). Lakoff [16] formulates in the following way the relationship between bodily patterns of experiential interactions and meaning:

> Meaningful conceptual structures arise from two sources: (1) from the structural nature of bodily and social experience and (2) from our innate capacity to imaginatively project from certain well-structured aspects of bodily and interactional experience to abstract conceptual structures. Rational thought is the application of very general cognitive processes – focusing, scanning, super-imposition, figure-ground reversal, etc. – to such structures.

Varela et al. [30] consider this view of meaningful conceptual structure consonant with the view of cognition as enaction where mind and body are in a relation of continuity with one another and of co-determination with the environment. As a matter of fact, Mark Johnson [13] points out that image schemas belong to the bodily basis of human meaning. This is embodied and immanent in the sense that it is possible thanks to deep-seated bodily sources that go beyond the conceptual and the propositional. In the embodied and enactive view of meaning meaning is

[5] See Johnson Chap. 2, in this volume.

situated in a flow of experience where the higher (the mind) develops from the lower (the body). This is also called the naturalistic approach to meaning.

Against this background I can now identify what is defamiliarized and refamiliarized in the process of defamiliarization and refamiliarization characterizing literariness recasted according to the enactive line of thought. If one takes enactivism and enactive embodiment into account, the defamiliarization-refamiliarization process can not refer to the mental schema of or about a concept. Rather, what can be defamiliarized and refamiliarized is a visceral bodily pattern of organism-environment coupling that constitutes experience and hence the reader's subjective embodied meaning of such a pattern. The example by Tsur [29] cited above will help illustrate my point:

– *Mum, is dad not ready to eat yet?*
– *Shut up, I have just told you, he's not tender enough yet.*

If one takes the notion of embodied meaning into account, using mental schemata as tools for explaining defamiliarization and refamiliarization is not plausible. In the cited example it is not the mental schema of EAT that can be defamiliarized and then refamiliarized in a new context of use. Rather, what can be defamiliarized and refamiliarized is the visceral pattern of experiential interaction, from which the meaningful embodied conceptual structure of EAT arises. This is distributed over the subject's body and brain and over the environment.

As it should be clear at this point, 'embodied' in an embodied enactive approach to meaning means embodied in the bodily structures of the subject interacting with a text or, in a more general sense, with the environment. It does not refer to 'embodied in the text itself'.

Against this background I suggest that the subject's conscious access to the pre-reflective preverbal dimension of experience, which is the conscious experience of the subjectively lived body, is the necessary condition for the reader to have the experience of defamiliarization-refamiliarization of the subjective embodied meaning of a visceral bodily pattern of organism-environment coupling that constitutes experience.

In the following I will explain why I consider such a visceral embodied process to be cognitive-emotional in a holistic sense.

Embodied Cognitive-emotional Meaning and Enactive Literariness

Even if Johnson does not take the road of phenomenology in his theory of embodied meaning in spite of its relevant role in enactivism, the conscious experience of the subjectively lived body is a phenomenological notion and needs to be taken into account in my account of enactive literariness.

In enactive research the lived body is considered to be the locus where mind and body, cognition and emotion, make contact. It is considered to be a dynamic

condition and a performance of the living body. In phenomenology it is usually considered to be the pre-reflective backdrop against which the perceptual and motor experience is constituted. According to Husserl, it manifests itself in perceptual experience as an implicit and practical 'I can' of movement and motor intentionality. One's experience of one's body as perceiving and acting corresponds to the relation of the lived body to itself ([28], 250) and is a kind of self-consciousness called pre-reflective.

Even if the lived body as a backdrop of perceptual experience allows to ground the sensorimotor structure of the patterns of organism-environment couplings that constitute experience in the body, it is not the motor lived body that can explain why the cognitive-emotional phenomenon of defamiliarization-refamiliarization is grounded in embodied meaning. According to enactive research on experience, embodied meaning and emotion, the lived body has an evaluative role, too. As a matter of fact, it is also the pre-reflective backdrop against which the cognitive-emotional evaluation of the experienced perceptual world takes place, which is its role in the enactive approach to emotion and which allows the realization of bodily sense-making [4]. This role of the lived body will be central in explaining cognitive-emotional embodied meaning in my account of enactive literariness.

Colombetti points out that in the same way as the pre-reflective lived body allows the experience of becoming aware of my body as that through which, for example, the experience of typing on the computer is possible, it allows to be similarly aware of the bodily arousal as that through which I am living the situation of an interview as anxiety provoking. I claim that this evaluative role of the lived body allows to recast literariness as a cognitive-emotional process characterized by the defamiliarization-refamiliarization experience of cognitive-emotional embodied meaning.

One of the advantages of considering Colombetti's enactive approach to emotion in the development of an enactive account of literariness is that in contrast to Miall and Kuiken, who acknowledge only the central role of feelings and emotions, it allows to integrate a specific theory of and approach to emotions into the study of literariness within the enactive embodied framework.

Colombetti has developed the idea that "from the enactive standpoint […], emotions are simultaneously bodily and cognitive-evaluative, not in the familiar sense of being made up of separate-but-coexisting bodily and cognitive-evaluative constituents, but rather in the sense that they convey meaning and personal significance as bodily meaning and significance" [4]. This is in contrast to disembodied views of emotions according to which the notion of emotion is constituted simultaneously by a mental event called appraisal and a bodily event called arousal. According to disembodied views, without a cognitive activity there can be no emotion, there can be bodily arousal only.

In developing the account of the cognitive-emotional embodied evaluation, which the aroused lived body is a vehicle of, Colombetti points out that, as there is no cognition without emotion and emotion is embodied, arousal needs no appraisal to be interpreted by the subject. The aroused body is immediately available as such to the subject's experience through the evaluation of the bodily aspects of emotion

as part of the subject's evaluation of the experienced world. Bodily arousal subsumes the whole subject's organism capacity to make sense of her world and is possible thanks to the lived body (see also [22, 23]). Moreover, in the experience of the aroused lived body bodily sense–making manifests itself through embodied emotions such as fear, anger, happiness, guilt, anguish. These are the subject's evaluations of bodily sense-making, which subsumes the idea that the whole organism is a vehicle of meaning which is dynamically constructed by the subject having a perspective on the world [4, 23].

What is the relationship between the cognitive-emotional role of the aroused lived body and the experience of defamiliarization-refamiliarization characterizing literariness? I contend that what is defamiliarized and then refamiliarized in a new context of lived experience is the reader's subjective embodied meaning of the visceral pattern of the organism-environment coupling that constitutes the defamiliarized embodied meaning. The lived process of bodily sense-making of a deviation from expectations the reader brings forth in the interaction with the striking stylistic devices of a literary text can be but determined by her conscious access to her aroused lived body, which allows to live through the cognitive-emotional evaluation of the embodied experience of a deviation from expectations and of refamiliarization guided by the evaluative role of emotions or of an emotion. Such a process of bodily sense-making is consummatory, for it completes itself. In other words, as John Dewey [7] would say, there is the awareness of a bodily lived process brought to fulfillment, so that the capacity of experience to mean is realized through a medium of activity and becomes an experience. The following passage is one of Dewey's most famous passages in which he defines *an experience*:

> An experience has a unity that gives it its name, that meal, that storm, that rupture of friendship. The existence of this unity is constituted by a single quality that pervades the entire experience in spite of the variation of its constituent parts. […] In going over an experience in mind after its occurrence, we may find that one property rather than another was sufficiently dominant so that it characterizes the experience as a whole ([7], 38).

The reader's enactive embodied consummatory experience of the bodily sense-making process of defamiliarization-refamiliarization like each completed experience carries with it its own individualizing quality. In the following I will argue that literariness is the lived aesthetic quality – and hence the individualizing quality – of the reader's consummatory experience of the cognitive-emotional sense-making process of defamiliarization-refamiliarization in artistic and non-artistic verbal communication.

Enactive Literariness as Aesthetic Quality

In an enactive embodied approach to human experience assigning meaning is a process of embodied evaluation of the consequences of interaction for the conservation of the subject's identity and for the expansion of her cognitive domain according to her bodily structure (see [23]). It depends on the subject's constitution of

viable degrees of value of adaptive selections of the encounter with stimuli of the environment: x is good, y is better, z is not sufficient. This is possible thanks to bodily sense-making. For example, x is good and y is better derive their meaning from a bodily degree of adaptation to environmental factors, which is prepared and developed in our non-conscious bodily self-regulatory activity and bodily sense-making, which is the source of their meaning, subordinated to movement. The constitution of different degrees of value is subordinate to the sensorimotor actions undertaken by the subject and it is brought forth or enacted by the subject's autonomous mode of sensorimotor coupling with the environment. In this sense it is the result of the so called *enacted viability* that occurs when the degrees of value simply facilitate the continuing integrity and integration of the organism according to her sensorimotor coupling with the environment [2, 8, 9, 21–23].

It is easy to figure out this process of embodied evaluation in the case of an organism perceptually exploring an environment through movement and actions. It is not so easy to figure out the same process in the case of the embodied evaluation of cognitive-emotional processes of the lived body where action, motion and hence the motor lived body do not play the main and central role. As I have argued elsewhere [23], the self-regulatory viable degrees of value represent the embodied backdrop of the felt qualitative dimension or felt quality of making a consummatory experience. In other words, such a backdrop represents the bodily condition grounded in the sense-making of the cognitive-emotional lived body which is necessary for the constitution of a felt quality indicating the completeness of an experience. I will argue in the following that in the case of the defamiliarization-refamiliarization process literariness emerges as the subject's felt aesthetic quality with an evaluative embodied function of the embodied refamiliarization process.

I propose that through the access to the aroused lived body the subject can become aware of a degree of felt viable – that is pleasurable – quality as an emergent feeling of wholeness which I identify with 'the aesthetic quality' of literariness. I consider it to be very similar to the feeling of wholeness characterizing an aesthetic experience according to John Dewey [7]. In the following I will clarify my point by taking into account John Dewey's notion of aesthetic experience and its constitutive dynamics and by drawing an analogy between this and what I refer to as the 'aesthetic'.

In his *Art as Experience* John Dewey points out that aesthetic experience is possible in a world where crisis, disturbance and disorder offer the opportunity for their resolution and hence the moment of passage from disturbance to harmony, which is the moment of intense life. According to Dewey, living the enjoyment of a period of harmony and hence an aesthetic experience is a temporary savored sense of culmination – a feeling of wholeness – because it is the beginning of a new relation to the environment that implies the disruption of the achieved equilibrium and hence a new tension between disorder or disruption and the search for a new harmony, which is the rhythm of organic life.

In my enactive approach to literariness I propose that the same dynamics of the pleasurable passage from disturbance to harmony that makes possible the emergence of the feeling of wholeness and hence of a sense of culmination characterizing

an aesthetic experience can be applied to the emergence of the aesthetic as a pleasurable cognitive-emotional felt quality of the sense-making of a deviation from expectations.

Considering enacted viability, such a quality may emerge from a similar dynamics, namely from the passage from an unviable degree of value, which corresponds to the defamiliarized embodied meaning that does not allow self-regulation and can be hence seen as a sort of disorder, to a viable one or also from a viable degree of value to a more viable one – the level of viability corresponding to a level of more familiar and hence more viable degree of value. I believe that the conscious experience of the cognitive-emotional bodily conditions of this passage makes possible the experience of the felt qualitative dimension of the aesthetic as a bodily cognitive-emotional viable evaluation. It leads to the emergence of a feeling of wholeness.

In my enactive approach to literariness, given the embodied and interdependent nature of emotion and cognition, the conscious bodily and bodily felt cognitive-emotional signal of the passage from x is unusual to y is more familiar, for example, corresponds to the passage from disorientation (low level of viability) to the awareness of a new point of view (high level of viability) or from this (high level of viability) to refamiliarization (higher level of viability) and hence to a situation of harmony or more harmony for the subject in the evaluation of the possibilities of refamiliarization.

According to my enactive approach, the duration of the conscious cognitive-emotional bodily signal indicating the level of viability in the interaction with an environmental factor corresponds to the situation where the temporary feeling of wholeness as the bodily mediated experience of the felt pleasurable quality of the refamiliarization of a defamiliarized bodily pattern, in other words 'the aesthetic', emerges. Contrary to an aesthetic experience where the feeling of wholeness, according to Dewey, is temporary and optimal as the expression of an attained harmony, the feeling of wholeness and of pleasure related to the reflective experience of the cognitive-emotional bodily conditions of refamiliarization can be but temporary and relative. It depends on the cognitive-emotional visceral degrees of value against which the experience of the feeling of wholeness after refamiliarization emerges and is subjectively felt. As I have stressed above, the locus of this visceral cognitive–emotional viable value is the subjectively aroused lived body.

Taking the enactive role of the cognitive-emotional aroused lived body into account, the experience of the temporary and relative feeling of wholeness of the aesthetic quality of literariness can emerge only when its cognitive-emotional bodily conditions are reflectively experienced through the cognitive–emotional aroused lived body. Such a reflective experience relates in a cognitive-emotional way the subjectively lived body to itself and to the defamiliarized and refamiliarized embodied meaning. In other words, the cognitive-emotional sense-making of the lived body brings forth viable degrees of value and creates the visceral conditions for experiencing literariness while bringing it forth in refamiliarizing a felt defamiliarized bodily pattern in the interaction with striking stylistic devices.

Conclusion

In this chapter I have rejected the cognitivist approach to literariness, which is considered to be leading in mainstream literary theories. I have outlined how the enactive approach to human cognition allows to develop an anti-dualistic notion of literariness which copes with the rising developments in the science of the mind.

In this contribution I have shown that literariness can be considered to be the lived aesthetic quality of the reader's consummatory experience of the embodied process of sense-making of the reader's deviation from expectations she brings forth in the interaction with the striking stylistic devices of a literary text. Given that the cognitive-emotional sense-making of the lived body brings forth viable degrees of value, it creates the visceral conditions for experiencing literariness while bringing it forth in refamiliarizing a felt defamiliarized bodily pattern.

My proposal at this stage aims at bringing the cognitive basis of the process of experiencing literariness closer to enactivism in order to foster the dialogue between the non-classical approach to the science of the mind and literary studies.

Enactive theorists can benefit from expanding their accounts of cognition and emotion to include the theory of literariness as the study of the cognitive-emotional defamiliarization-refamiliarization process both in human verbal communication and in cognitive-emotional interactions in the exploration of the environment.

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Part VI
Creating with and for the Embodied Mind

Chapter 17
Creativity in Digital Fine Art

John Haworth

Abstract The chapter draws on the writings of Merleau-Ponty constituting an Embodiment Theory of Art, which he uses to support his embodiment theory of perception (Haworth JT, The embodiment theory of pre-reflexive thought and creativity. In: Gilhooly KJ, Keane MTG, Logie RH, Erdos G (eds) Lines of thinking, vol 2. Wiley, Chichester, 1990, Leonardo 30(2):137–145, 1997). This views the artwork as "enriched being" in its own right, as distinct from an analogue for an external truth or essence, as traditional aesthetic theory claims. It proposes that this enriched being is not produced primarily by intentional acts, the traditional view, but by the reciprocal influence of consciousness, the body, techniques and materials. It "gives visible existence to what profane vision believes to be invisible" (Merleau-Ponty M, Eye and mind. In: Eddie JM (ed) The primacy of perception. North Western University Press, Evanston, p 166, 1964a). Merleau-Ponty (Eye and mind. In: Eddie JM (ed) The primacy of perception. North Western University Press, Evanston, 1964a) drew on the writings of modern artists and concluded that the painter's vision is not a view on the outside, but a concentration or coming to itself of the visible (p. 181). He considered that works of art contain matrices of ideas that have their origins in embodiment (Merleau-Pony M, Indirect language and the voices of silence. In Wild J (ed) Signs. North Western University Press, Evanston, p 77, 1964b). He also claimed "that modes of thought correspond to technical methods, and that to use Goethe's phrase 'what is inside is also outside'" (Sense and Nonsense 1964c, p 59). As Merleau-Ponty indicates, we do not see the world, but see with the world. In artistic terms different media with which we interact have different voices which play a part in the creation of enriched being, perception and consciousness. The chapter will present conclusions from research conversations undertaken by Haworth (Leonardo 30(2):137–145, 1997) using the perspectives of Merleau-Ponty, held with internationally famous artists in order to gain further insights into the creative process. The chapter will summarise and discuss findings from practice led research by the author, funded by the Arts and Humanities Research Board in the UK, into Creativity and Embodied Mind in Digital Fine Art;

J. Haworth (✉)
Research Institute for Health and Social Change,
Manchester Metropolitan University, Manchester, UK
e-mail: haworthjt@yahoo.com

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and Freedom and Constraints in the Creative Process (Haworth JT, Explorations in creativity, technology and embodied mind. In: Freire T (ed) Understanding positive life: research and practice on positive psychology. Escolar Editora, Lisboa, pp 429–444, 2010a). Several examples of recent work in digital fine art by the author will be presented and discussed, focusing on the creative process. Comments will be noted from an international study of digital artists (Thompson P, Born digital-new materialities. Robert Gordon University, Gray's School of Art, Aberdeen, 2011). The chapter will summarise and discuss an innovative photoethnographic project by the author into 'The Way We Are Now', and 'A day in the life of----'. The possibilities of interpretation of this visual methodology are considered to be "an artistic object for contemplation; as individual visual profiles for comparative research; or as analysis of themes across a group of individuals, and between groups" (Haworth JT, Explorations in creativity, technology and embodied mind. In: Freire T (ed) Understanding positive life: research and practice on positive psychology. Escolar Editora, Lisboa, pp 429–444, 2010a). The ESM method with photos can also stimulate reflection and change in perceptions. The method can break the mould of looking/ perceiving. It can open up opportunities/possibilities for new ways of seeing things, and introduce a new train of imagination. The method could be used to create a global mirror of consciousness. The chapter will conclude by discussing future directions for research and practice.

Keywords Embodied mind • Digital art • New technologies • Aesthetic experience • Phenomenology

Introduction

There is widespread interest in the study of creativity, invention, innovation, and entrepreneurship [2]. Digital Aesthetics [6] and Digital Art [27] are important areas of activity. Christiane Paul (2003, 212) argued that 'Art will always reflect on the specifics of cultural change', and 'technologies' in the broadest sense have always been an important part of this transformation of culture. She noted with some prescience that 'In all likelihood digital technologies will become more and more pervasive and will not constitute a category in themselves but will become an integral part of life and art in general'. She concluded that 'Art has always employed and critically examined the technology of its time, and the art of the future will equally reflect the cultural changes induced by developments in information technology as it intersects with biotechnology, neuroscience, nanotechnology, and other disciplines' (214). This has been borne out in the UK by recent collaborations in arts and science funded by the Arts Council, and the Wellcome Trust. Today in the UK the information world has been viewed as an increasingly seamless matrix of the visual, verbal and aural, with the arts at the centre; and there is a call for education to break down barriers between subjects and develop curricula where creativity, imagination and innovation are always central themes. (Letters to The Guardian 06 November 2012).

The critical reflections of artists were used by the psychologist/philosopher, Maurice Merleau-Ponty, in his writings constituting an Embodiment Theory of Art, which he used to support his Embodiment Theory of Perception [10, 11]. This Embodiment Theory of Art views the artwork as "enriched being" in its own right, as distinct from an analogue for an external truth or essence, as traditional aesthetic theory claims. It proposes that this enriched being is not produced primarily by intentional acts, the traditional view, but by the reciprocal influence of consciousness, the body, techniques and materials. It "gives visible existence to what profane vision believes to be invisible" ([24], 166). Drawing on the writings of modern artists Merleau-Ponty [24] concluded that the painter's vision is not a view on the outside, but a concentration or coming to itself of the visible. Painters do not put their immediate selves into paintings, but rather their styles, which they have had to master. Style is not something developed consciously in order to depict the world, but is an "exigency that has issued from perception" ([25] in Signs, 49). Merleau-Ponty considered that works of art contain matrices of ideas that have their origins in embodiment ([25] in Signs, 77). He believed ([24], 179) that depth is a crucial consideration in painting, citing Giacometti ("I believe Cezanne was seeking depth all his life") and Robert Delaunay ("Depth is the new inspiration"). This depth is not that of Euclidian space, but rather of global locality: "a locality from which height, width and depth are abstracted a voluminosity" ([24], 180). He also claimed ([26], 59) "that modes of thought correspond to technical methods, and that to use Goethe's phrase 'what is inside is also outside'". From his analysis of modern art, Merleau-Ponty [24] concluded "Now we have a better sense of what is meant by that little verb 'to see'. Vision is not a certain mode of thought or presence to the self; it is the means given me for being absent from myself, for being present at the fission of Being from the inside". As Merleau-Ponty indicates, we do not see the world, but see with the world. In artistic terms different media with which we interact have different voices which play a part in the creation of enriched being, perception and consciousness. In the posthumous publication The Visible and the Invisible edited by C. LeFort [22] Merleau-Ponty viewed his theories as incomplete, and indicated that one of the areas destined for review was the study of the imaginary "which is not simply the production of mental images, but the baroque proliferation of generating axes for visibility in the duplicity of the real" (lii).

In his writings on the Embodiment Theory of Perception, Merleau-Ponty gave us a route to follow, rather than a finished theory. In 'Phenomenology of Perception' (1962) he presents knowing and understanding as embodied action, and makes an important distinction between reflexive and prereflexive thought, the latter being seen as playing an important role in perception and creativity. He argues that the body has its world or understands its world without having to use its symbolic objectifying function, "…to perceive is to render oneself present to something through the body" and "consciousness is in the first place not a matter of 'I think that', but of 'I can'" (137). Merleau-Ponty proposes that the visible unfolds and is concentrated by the body over time. Meaning is not found pre-existent in the world, but called into existence by bodily activity, with inter-subjectivity resulting from the communality of the body. While Merleau-Ponty does not accept that truth endures

for all time, he recognises that truth endures for a time. Euclidian geometry is still with us and useful, even if it is not the only geometry. But it is truth which results from an "inherence in things". It is truth which is relative to a system or medium, it appears when we allow ourselves "to come to rest in it" (1962, 396). Truths and ideas are thus cultural objects rather than absolute certainties. Yet this does not detract from their organising force. They may indeed give a firm focus to action and thought.

A paradigmatic change is occurring in our conception of what it is to be a human being in the world, and how we come to understand things and act in innovatory and creative ways. Varela et al. [29] in their book 'The Embodied Mind: cognitive science and human experience', present cognition as embodied action. Likewise, Lakoff and Johnson [21] in their book 'Philosophy in the Flesh: the embodied mind and its challenge to western thought' emphasise that the mind is inherently embodied. They stress that thought is mostly unconscious; and that abstract concepts are largely metaphorical. They discuss in detail how the body and the brain shape reason, contrary to traditional Western Philosophy which sees reason independent of perception and bodily movement. The authors of these books acknowledge their indebtedness to the philosopher and psychologist Maurice Merleau-Ponty and his embodiment theory of perception. However, unlike Merleau-Ponty, they do not examine the importance of the interaction with materials and the role of technique and technology, in helping to shape consciousness. The importance of the intertwining of perception and technology is recognised in the writings of anthropologists who view technology as skilled practice [9]. Recognition of the importance of prereflexive thought has also received support from scientists [8]. The turn towards the importance of the senses in vision has been emphasised by Howes [17] in his edited book 'Empire of the Senses'. Johnson [19] in his book 'The Meaning of the Body: aesthetics of human understanding' argues that meaning is more than words and deeper than concepts. The central thesis of his book is '--- that what we call "mind" and what we call "body" are not two things, but rather aspects of one organic process, so that all our meaning, thought and language emerge from the aesthetic dimensions of this embodied activity. Chief among those aesthetic dimensions are qualities, images, patterns of sensorimotor processes, and emotions.' (1)

Research on Contemporary Artists

Several key artists were interviewed concerning the creative process from the perspective of Merleau-Ponty's theory of art [11]. The artists all incorporated printmaking methods in their work. As such their work is pertinent for both the study of creativity, and digital art, as this can be a multi-method activity. These 'research conversations' were similar in method to those used by Sigmund Koch reported by Franklin [7]. The printmaker Michael Rothenstein, can be considered a paradigmatic case for Merleau-Ponty's Theory of Art. In making woodcut prints, which can feature cockerels, kites, couples etc, Rothenstein conspires with nature and interacts

with materials in a way that resonates with the substructure of his nature. He considers that a drawing with a knife or gouge is something substantial, and that a print taken from a woodcut can have a unique vital quality, and that a gesture which the eye can follow can engender a state of empathy between artist and onlooker. When printmaking he "listens to the voices" emanating from the process and is influenced by long-standing images that can "weigh in" on thought, guiding intention and emerging through a stylistic process to be incorporated in the natural flow of vision. Alan Green is a painter and printmaker concerned with the artwork as "object" and the serial property of printmaking, where the individual members of a suite of prints bear some relationship to each other. The surface of the square and related elements often constitute his artistic domain, typified by his two colour etching and aquatint print 'Black through to Cream'. He treads a fine line between letting work happen, experimenting with both surfaces and ideas, and terminating experiments by choice. He considers that he is providing restricted areas for chance to occur and partly controlling this. The work of the conceptual artist Sol LeWitt, whose statements emphasising the importance of 'the idea', would at first sight appear to contradict Merleau-Ponty's theory of art. However, an investigation of the working process of Sol LeWitt, shows support for Merleau-Ponty's Theory. LeWitt's serial work involving the square and cube, lines in four directions, and primary colours, crucially recognised the logic of taking all possibilities, and using numbers as the easiest form of making a logical decision. Le Witt considers that conceptual artists are intuitive rather than rational. That to discover the main idea a leap of faith or a leap of aesthetics has to be made. His work shows the important organising force an idea can have in directing action in the creative process, while also pointing to the importance of capitalising on randomness so as not to preconceive the end, to discover things you wouldn't think of.; to go beyond reason to discover or create new forms or artworks; and to choose intuitively what feels right when faced with a range of new developments. Jasper Johns art has a concern with space and multiple meanings. It demonstrates an intimate concern with the concept and process of visibility. Exploration is paramount, in distinction to making an intended statement. His work, such as the rich painting of the American Flag using coloured wax (encaustic) facilitating the incorporation of pieces of newspaper, indicates that vision is a process occurring over time in which there is an intricate reciprocal interplay between ideas and opportunities for action. Johns stressed that doing this work was very important as it taught him a new way of looking. He then looked for new objects that had space as part of them (such as targets) and could be related in space to other objects. Johns considers that in his printmaking the use of different methods and materials alter what image is. In the terms of Merleau-Ponty [23], "the process of expression brings meaning into being or makes it effective, and does not merely translate it". The detailed 'research conversations' undertaken by the author into the creative process in fine art support the view of cognition as embodied action, and emphasise the importance of both pre-reflexive and reflexive thought in guiding action. They show a search for viable alternatives, rather than a search for the ideal.

Research on contemporary digital artists has been conducted by Paul Thompson [28]. 'Born Digital-New Materialities' examines the notion of 'printmaking 2.0' as

part of research into the physical and temporal parameters of post-studio printmaking practice, where images can be made, shared and collected digitally, and where new technologies demand new conceptions, forms and aesthetics: 'new materialities'. The prints submitted by the artists made expressions relating to aesthetics and process, natural/environmental exploration, socio-political conditions, philosophy and human conditions. The artists also submitted data offering a view of print 2.0. They expressed the potential of the medium referencing flexibility, expressiveness, potential new opportunities and wider international audiences, as being positive features of digital printmaking. There are now websites showing artwork for sale, and websites for juried exhibitions of digital artwork submitted worldwide. However, concerns were also cited over notions of ownership and copyright, and the possible prejudice towards the digital medium within the traditional printmaking sphere. It was noted that overall from the submissions one draws the sense of mixed digital approaches, reflecting the diverse contexts of the artists, with each striving to evolve their own visual language. Some of the work was done by hand on the prints, using a range of media, and then scanned into the computer for further experimentation, sometimes referred to as Post Digital Printmaking [3]. The print I submitted (number 21 in the portfolio) 'Wild Borders: autumn' is shown in Fig. 17.1. It utilizes

Fig. 17.1 Wild Borders:autumn

photos I took of a border hedge in the autumn, experimenting with one photo, while also manipulating associated photos of vegetation. It also incorporates borders based on colour coded bands indicative of subjective well-being, used in other projects, which are discussed later. A back-ground awareness was the iconic event in the Garden of Eden. There was also persistent interest in capitalising on both the detailed 'reality' of photography and the power of abstraction. In reporting on my printmaking process I stated that I use photographs, and traditional printing inks and pastels on paper, scanned into the computer; scratched drawings on plastic (drypoints) with pastels catching the edges of lines with some coloured dust remaining on the surface, also scanned into the computer. The materials are then brought together in the computer using Adobe Photoshop software.

Practice-Led Research

The fusing of thought and action in the theories of Merleau-Ponty highlights the importance of combining research and practice in innovatory ways. A project by the author investigated 'Creativity and Embodied Mind in Digital Fine Art' [14]. The project was funded under the Innovation Awards Scheme of the Arts and Humanities Research Board in the UK. The problem to be explored was the nature of the interplay between mind, body and technology in fine art. The aim was to bring into visibility the nature of the creative process in digital fine art, allowing critical insights and products to emerge, which can be put into the public realm to enhance understanding and appreciation. The methods of research were interlocking and included creative practice and reflection, literature and gallery research, interviews, workshops, and an interactive website. (www.creativity-embodiedmind.com). The creative practice was digital fine art printmaking, which at some stage in the working process involves the computer using Adobe Photoshop software, and often commences with a photo. Printmaking, such as etchings, linocuts, screen-prints etc., has long been my chosen medium because of the potential it offers for the exciting exploration of delicate surface properties. The digital print medium, with its fine surface quality and potential to incorporate and transmute imagery, is particularly attractive as a conduit for the idea of the vibrant transience of reality. This is explored while probing the pixels and listening to the voices emanating from the medium. In part, 'the medium is the message'. Many of the prints I make also have their origins in transitions in daily life. During the making of the prints, a log is kept of both the technical and thought processes involved. Notes are made on the interaction with the medium, and on the development of the work and emergent meanings, and reflections on the creative process. An account of the production of one of the prints (Fragmenting Square), as an example of the documentation, can be seen at [14]. The work shows the important interaction with technology in the way we see and portray the world. The practice based research making many digital art prints shows that the process of exploration with the computer generates and reveals possibilities and visual experiences, as well as speaking to initial expectations. The process of

exploration becomes a vehicle for seeing which is influenced by the technology. Visual explorations undertaken with the computer can influence what one 'sees' in the world, what comes into focus and what demands attention, influencing what is recorded experientially, mentally, and digitally. In turn, this influences further explorations with the computer. Artistic vision is constantly reshaping itself in interaction with the world, including technology, geographical place, culture and events. As cognition and emotion are intertwined, feelings influence seeing, as well as the reverse. Expression is also influenced by the tools and techniques that are available, and with the interaction with materials, with different potentialities and 'voices' emerging. The work has been exhibited internationally. Examples of the prints can be seen in the gallery at www.creativity-embodiedmind.com. The work is continuing. It is discussed later in the chapter.

The Innovation Award project also highlighted the potential importance of studying freedom and constraint in the creative process. The computer enhances freedom for exploration, but also contains within it the potential tyranny of continual choice, though artists can apply constraints, intuitively or otherwise. As part of a further Arts and Humanities Research Board award for practice-led research, a workshop, attended by internationally known British artists and academics from different disciplines, was held on 'Freedom and Constraint in the Creative Process in Digital Fine Art', Haworth et al. [12] (see also workshop 2 at www.creativity-embodiedmind.com and Haworth, J.T. [13, 14, 16]). In line with new conceptions of what it is to be a human being in the world, and how we come to understand things and act in innovatory and creative ways, the workshop emphasised that creative thought can be largely unconscious. Also, that creativity involves the interaction of thought, the body, techniques and materials. The importance of bringing tacit knowledge into visibility was recognised. Johnson-Laird [18] argues that the paradox of creativity leads to the view that there are many criteria on which the creator must rely and that by no means all of them are available to overt inspection. Some of these are common to many practitioners, and constitute the genre or paradigm. Other criteria are unique to individuals, and constitute an individual style of thought within the more general framework. A personal body of art work can be important for enhancing freedom of thought, stimulating innovative connections, and embryonic themes; though it is also recognised that routine themes can perhaps constrain creativity. The work of Jasper Johns has been cited previously showing the influence of previous work in the process of creativity. The Joan Miro Foundation in Barcelona with its exhibition of the artists work over a lifetime, and the informative 'Guide of the Foundation' [4] discussing this, is a further excellent example.

The print shown in (Fig. 17.2) shows the influence of a personal body of art work in developing or creating a new theme. The print 'Towards the Future' was made after visiting the Gerhard Richter retrospective exhibition at the Tate Modern and the Occupation at St Paul's Cathedral in London. Photographs were taken of the Occupation, which was protesting about inequality and the unfair way austerity was being implemented. The occupation was by people from different backgrounds coming together to discuss change. There were no set leaders, more a heterogeneous group. It followed similar occupations in different countries, including Tahrir

Fig. 17.2 Towards the Future

Square. Another influence was a visit to Tenerife and an appreciation of the black volcanic larva which can help to sustain growth in the arid country, and which is often formed in a circle with, sometimes, an outer band of lighter coloured rock, the formation supporting a plant. Drawings of this and the circle at Tahrir square were made, as well as shots taken of protests at the square shown on the TV. A print called 'Fragmenting Square', done after the September 11 attack on the twin towers in New York hangs in the studio. (see the gallery for the print at www.creativity-embosiedmind.com). As is well known, the square has been an important element in the work of modernist artists searching for pure form and beauty, and absolute truth and meaning. The post-modern age questioned the viability of this. September 11 saw further crumbling of the certainties. But perhaps the print contains delicate potentials for growth and relationships. Work on New Square was layered onto the digital image of Fragmenting Square, with different possibilities explored. A print titled 'New Square' was saved (see [16]) Further explorations were undertaken, Interestingly, photos of the circular Large Hadron Collider were in the newspapers, with news imminent of the Higgs bosun and the implications for the origins of the cosmos. The photo was scanned into the computer and layered onto the New Square print, the resultant print titled 'Towards the Future' is shown in Fig. 17.2.

A personal body of work, containing an interdisciplinary approach, can also be important for creativity, as the next example illustrates. The Impact 8 International Printmaking conference at the University of Dundee in August 2013 has the theme of 'Borders and Crossings: the artist as explorer'. It is a celebration of interdisciplinarity and exploration through the medium of print with its multiple identity, which

continues to play a crucial role in the exploration of borders and crossings-be they geographical, ideological, cultural, theoretical or practical. A submission was made for an exhibition/installation containing different works related to vision, feeling and emotion over a day, which also have the potential to re-late to a portrayal of persons as individuals and in the collective. The works are conjoined, where the embedded matrices of ideas concerning the present and future are greater than the sum of the individual works. Together, they are 'In the right place'. They are part of a broader exploration of the changes and transitions in life and nature, focussing on the vibrant transience of reality. www.creativity-embodiedmind.com. The exhibition/installation includes a brief introduction alongside the print, 'In the right place' shown in Fig. 17.3

The exhibition features the print 'A day in the life of----'. This is part of an innovative photo-ethnographic project which uses a mobile phone-camera to capture images and investigate slices of time and subjective experience, which can be colour coded on the prints. It is 60 cm wide and 165 cm long, hung from a specially constructed stand assembled on the spot, with details of the project and how to participate, usually over a 12 h day, supported by its two arms. The print is one day of the project 'The Way We are Now' done for seven consecutive days. A digital art print of 'The Way we are Now' was first presented at the 5th IMPACT International Print Making Conference in Tallinn, Estonia. October 2007. The conference had a concern with investigating slices of time and the production of political-poetic statements. If the project is done for 7 days it could be used to construct a 3D portrait, which could include comments on daily experience recorded by the participant during the project. The project drawings for this are included in the exhibition/installation. A print called 'Bed: be my baby tonight' is also exhibited. A print called 'Morning Mooring', drawing on the changing light on a mooring in a harbour, is exhibited, dimensions 60 cm wide × 125 cm long These drawings and prints are fixed to a felt display board with Velcro. A final complementary print is 'May Day' 60 cm wide × 160 long. This is shown on a table. The print utilizes photographs

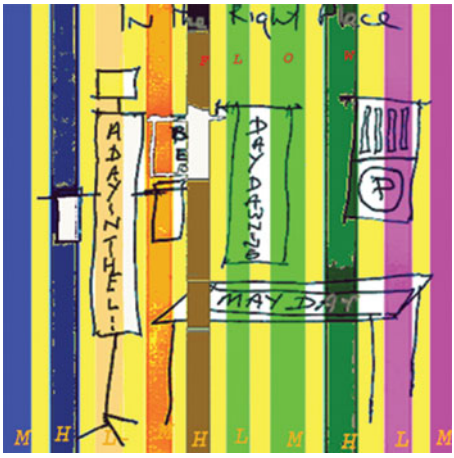

Fig. 17.3 In the right place

taken throughout a stormy day at the harbour. This exhibition/installation combines the author's practice led research into digital art with his research into well- being, funded by the Economic and Social Research Council in the UK www.wellbeing-esrc.com, Haworth [14]. This interdisciplinary work is an example of the recent developments in art-science research in the UK, where artists and scientists combine to bring scientific insights to a wider audience, using the medium of art. A paper on 'The Way We are Now', including the image, can be downloaded from the websites at www.haworthjt.com. The possibilities of interpretation of this visual methodology are considered to be "an artistic object for contemplation; as individual visual profiles for comparative research; or as analysis of themes across a group of individuals, and between groups" [15]. The Experience Sampling Method with photos can also stimulate reflection and change in perceptions. The method can break the mould of looking/ perceiving. It can open up opportunities/possibilities for new ways of seeing things, and introduce a new train of imagination. 'A day in the life of ----' with instructions on how to undertake the project, and the colour codings, was shown as an installation in a gallery of art works specially curated to accompany an international conference on 'Towards a Science of Consciousness' in Hong Kong 2009. The project could be undertaken by different size groups, locally [20] regionally, nationally, and globally; and made available on a dedicated website, and shown in exhibitions, to produce a social mirror of consciousness.

Csikszentmihalyi [5] argues that creativity is the product of three main shaping forces: a set of social institutions, or field, that selects from the variations produced by individuals; a cultural domain that will preserve and transmit the selected new ideas or forms to the following generation; and the individual who brings about some change in the domain which the field will consider to be creative. Abuhamdeh and Csikszentmihalyi [1] consider that the field has a perpetual need for novelty, and that as a result the field's aesthetic preference is guaranteed to change constantly. The field includes all the individuals who act as gatekeepers to the domain, including art critics, art historians, art dealers, art collectors, and artists. Christiane Paul [27] argued that digital art and its practitioners are expanding the range of ideas and forms considered acceptable by the field; while at the same time broadening and democratising the field. Part of this process may be an intuitive recognition that creativity is not a search for absolute unchanging truths, but ideas and forms in which we can come to rest provisionally, with inter-subjectivity resulting from the communality of the body.

It can also be added that social factors, including Government policies and funding, also have a significant influence on both the field, and the freedoms and constraints influencing creativity, such as education, training, and access to resources. And, of course, the field is not a unified whole. There are separate overlapping divisions. In the Manchester Buy Art Fare in 2012 one floor containing many Galleries from around the country showed primarily works of art done by the hand, including paintings, drawings, and some non-digital prints. On the floor above, The Manchester Contemporary hosted more conceptual and digital art. An artist has the freedom to choose fields, or, as is increasingly being done, combine traditions. But there are constraints of what feels right, of what sells, and of who art is for.

New Technology

Many artists are interested in the potential of new technology for their art work. Recently, the potential of the iPad has been exquisitely shown by the exhibition at the Royal Academy in London 2012 of prints by David Hockney. These vibrant multicoloured works of rural landscapes in Yorkshire drawn in situ, were printed and exhibited on a framed support board. Many of the works done by Hockney on the iPad formed the basis for his paintings done in the studio, when the mark making could be revisited.

While storm bound in a small village by a harbour, I made several drawings using an iPad of a garden viewed from the studio apartment balcony. The drawings were made over the day at intervals from morning to nightfall. The camera on the iPad was also used to take photographs of the garden at different times, and in different lights, including late evening when moonlight was reflected off the leaves of the bushes. The 'Art Studio' image processing software downloaded onto the iPad was used for relatively simple manipulations of the image, saving several versions. In my studio, 'Night Garden', Fig. 17.4a, was printed on white fine art paper leaving a border and exhibited in a black wooden frame 100 cm wide × 70 cm high, under glass. It was shown at an open juried exhibition. Several other prints have been done using the iPad. 'Last shout (of summer)', shown in Fig. 17.4d, originated from a photo of a single yellow flower amongst chives and other plants set against a raised wooden bed in the garden at the rear of my studio. Again, several versions were explored with the software on the iPad. Experiments were made adding vertical borders quickly stroked by hand. Images were downloaded onto a PC in my studio and explored using the more sophisticated Adobe Photoshop software. In one version, Fig. 17.4b, the borders became an outer plain green coloured stretched square (oblong) in which the rest of the print was set. This consisted of a smaller similar shaped oblong which contained very detailed imagery of the plant life captured in the photo and reduced to lines, not readily drawn, by an Adobe photoshop filter, Fig. 17.4c. Inset squares have been a feature of some modern art. Sharp hand drawn black lines were introduced, shooting across the boundaries of the oblongs. This version was printed on fine art paper, and mounted in a light coloured wood frame. The print did not seem to have the required vibrancy. Another version was made, and printed on fine art paper. Later, further experimentation was done on the print. It was soaked in water and hung to dry on a washing line in the garden with the original scene in view. Water soluble pencils were used to draw on the print, the marks approximating the small purple/ blue flowers on the thin long narrow stalks of the chives. The print had bled slightly from the more solid oblong of print, giving a subtle variation. The print was photographed and downloaded into the computer. The single flower was worked on. The print was beginning to have the feel of a political edge. Later it was realised that it was approaching remembrance day for world wars, with remembrance poppies appearing in the media. The image was printed and mounted in a dark brown wooden frame and hung on the wall (Fig. 17.4d). In the production of the image there had

Fig. 17.4

been an underlying concern with the interplay between colour, line, form and space. In making the print, I also noted in the log of the creative process that a lot of the process was about what one is willing to accept, and also where the print takes one. It was shortly after the print was done that an opportunity arose to visit the Joan Miro Foundation, where I found that much of his work had similar concerns.

Conclusion

The interactions with artists through interviews and surveys discussed in this chapter, and the practice-led research and case studies of the creative process in digital fine art printmaking, reinforce the view of cognition as embodied action, and emphasize the importance of both pre-reflexive and reflexive thought in guiding action. As cognition and emotion are intertwined, feelings influence seeing, as well as the reverse. Artistic endeavour shows a search for viable alternatives, rather than a search for the ideal. It also shows the important interaction with technology in the way we see and portray the world. Visual expression is influenced by the tools and techniques that are available, and with the interaction with materials. Technology influences perception and thinking; while at the same time concepts, ideas, and feelings influence the use of technology. Artists generally also have a deep knowledge of the art world which may inform the creative process, providing potential ideas to follow or to react against, or both.

The computer, and other digital devices, enhance freedom for exploration, generate and reveal possibilities and visual experiences, as well as speaking to initial expectations. Random happenings in the process of making art are also critical to the creative process, enhancing freedom of choice. In turn, however, choice can be tyrannical, if it is not embedded in constraints, which artists may apply intuitively or otherwise; and which may originate from the individual, group, and society. A personal body of work, and an interdisciplinary approach, can also be important for creativity. Digital art and its practitioners are expanding the range of ideas and forms considered acceptable. Part of this process may be an intuitive recognition that creativity is not a search for absolute unchanging truths, but ideas and forms in which we can come to rest provisionally, with inter-subjectivity resulting from the communality of the body.

In making the print, shown in Fig. 17.4d there had been an underlying concern with the interplay between colour, line, form and space. The log of the creative process indicated that it was also about what one is willing to accept, and where the print takes one. In one sense it is art as analogy. In the terms of Merleau-Ponty [23] “the process of expression brings meaning into being or makes it effective, and does not merely translate it”. These are facets which are perhaps of generic concern for artists. The research on contemporary digital artists conducted by Paul Thompson [28] also gave the sense of mixed digital approaches, reflecting the diverse contexts of the artists, with each striving to evolve their own visual language.

Merleau-Ponty viewed his theories as incomplete, and indicated that one of the areas destined for review was the study of the imaginary “which is not simply the production of mental images, but the baroque proliferation of generating axes for visibility in the duplicity of the real” The practice-led research cited in this chapter indicated the importance for imagination of technology used innovatively, which can be enhanced by an interdisciplinary approach, fuelled

(continued)

by life-long embodied knowing and potential for action operating in a diverse world. Future research into creativity could usefully document a range of explorations by visual artists, with in some cases artists keeping notes or a log investigating the nature of their interactions with materials, and bringing into visibility their insights into the creative process and the nature of imagination.

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Chapter 18
An Autopoietic Aesthetic in Interactive Art

Jennifer Hall

Abstract While autopoiesis can refer to biological systems that self-reproduce, autopoiesis also applies to non-biological systems that possess the characteristics of self-sustaining processes, making it a useful lens for critiquing interactive art. According to biologist and philosopher Francisco Varela, credited with creating the term autopoiesis, these controls can be identified in both artificial living systems as well as self-generating mechanical forms. When autopoietic systems overlap or blend with each other, they create new typologies according to their behavioral characteristics. This blending also produces a larger complex second level union of interaction that involves how we relate to an artwork and how we can critique those aesthetic experiences. Through the installation artworks of Ken Rinaldo and the robotic sculptures of Simon Penny, this chapter explores how these works are viewed within the autopoietic model of interactivity and aesthetic generation.

Keywords Autopoiesis • Art installations • Interactive art • Enactivism • Sensorimotor theories

Introduction

Autopoiesis is a system of self-creation. While autopoiesis can refer to biological systems that self-reproduce, autopoiesis also applies to non-biological systems that possess the characteristics of self-sustaining processes, usually by the use of internal feedback controls. According to Francisco Varela, credited with creating the term autopoiesis, these controls can be identified in both artificial living systems as well as self-generating mechanical forms. In biology, the autopoietic exchange is observed in different biological systems, from the co-evolved genomes of mitotic divisions in the eukaryotic cell [3] to the reward-anticipation potentials of holonomic brain theory [11]. In artificial life systems, such as the code for robotics [4] or the ecosystems of virtual modeling in artificial chemistry [1], we also see the

J. Hall (✉)
Massachusetts College of Art and Design, Boston, MA, USA
e-mail: jennifer.hall@massart.edu

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persistence of the autopoietic functionality [8]. The integration of autopoietic biological and mechanical systems also creates phenomenological boundaries—or semi-permeable membranes of demarcation between objects. When autopoietic systems overlap or blend with another, they create new typologies according to their behavioral characteristics. Both transformative and destructive, these independent systems also become agents to and within other apparently unrelated systems. Autopoiesis is a new way to conceptualize our relationship to everything we come in contact with. This blending also produces a larger and complex second level union of interaction that involves how we relate to an artwork and how we can critique those aesthetic experiences.

Inherent in this structure is the re-evaluation of the idea that aesthetic experiences are singular events. No longer does an object stand alone in the world. Nor does an aesthetic experience belong only to an individual human. The aesthetic experience is now always autopoietic. In addition, autopoiesis exposes a common ancestry of all people and machines who participate in exchanging and merging life events. In this way, this perspective rejects both the Kantian view of aesthetics, according to which aesthetics is non-conceptual and incapable of giving rise to knowledge, and the mind/body dichotomy that underlies it.

Organ Distribution

A stunning example of an autopoietic union between people and aesthetic machines can be experienced through the installation artwork of Ken Rinaldo. In the multipart installation, Enteric Consciousness 2010, we see a group of large robotic tongues controlled by an artificial stomach that fills with the living bacteria Lactobacillus Acidophilus (Fig. 18.1).

The enteric system is the neurogastroenterological autonomous functioning of the stomach. As a subdivision of the autonomic nervous system, the enteric is where cells are a transient component to both the stomach lining and the spinal cord. In other words, the enteric permits a shared component to many parts of the body. Through the function of the enteric, the brain is directly connected to some 100 million neurons of the spinal cord via the intestinal lining of the gut: a kind of redistribution of the brain, spinal cord, and stomach. Rinaldo's understanding of the enteric system informs his creation of an artificial stomach that extends the electrochemistry of the human body from the neural crests of the brain and stomach into the total body ecology of the installation. When the robotics deliver chemicals found in the human body to the artificial stomach, this action triggers performative events for the interactant to engage with, subsequently transforming the installation as a whole.

In one section of the installation, Enteric Consciousness 2010 is host to large robotic tongues dipping in and out of bowls of melted dark chocolate, drip-feeding an artificial stomach with squirts of dopamine stored in the robotic tongue. In the

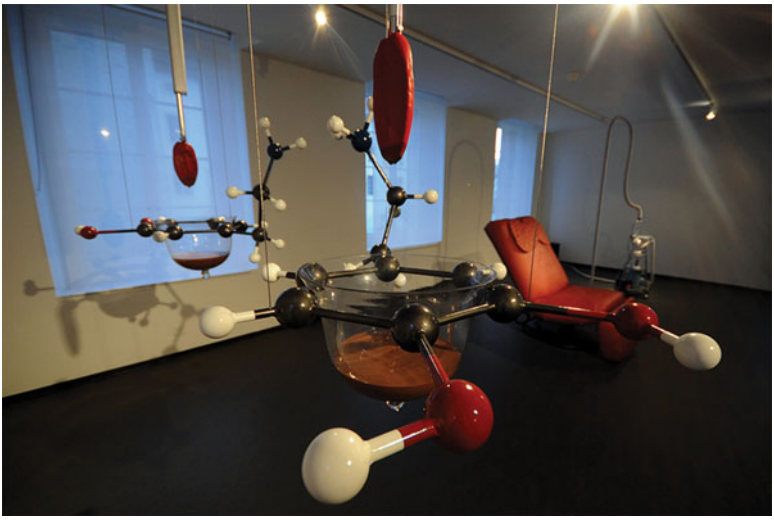

Fig. 18.1 Dopamine dripping from a robotic tongue. Enteric Consciousness 2010, Ken Rinaldo (installation detail). Commissioned by Maison d'Ailleurs, Musée de la science-fiction, de l'utopie et des voyages extraordinaires, curated by Patrick Gyger (Photo: Nicolas Nova)

human brain, the chemical dopamine is known to create feelings of enjoyment and even addictive pleasure, while in the stomach it has an emetic effect and can also cause severe constipation, literally stopping the flow of activity in the lower intestines. The body has a similar response to chocolate. So, the dual use of dopamine and chocolate is an aesthetic reflection on the enteric system, refocusing attention from the chemical dopamine, the tongue, or even the stomach as singular objects, to the behaviors of the entire system. Meaning becomes contingent upon these dynamic situations, rendering either pleasure or discomfort through the acts of chemical distribution. Furthermore, there are a variety of ways in which the meaning of Rinaldo's installation can change; the system in play references both pleasure and discomfort, implying that sometimes these outcomes can be a shared, rather than an opposing, experience (Fig. 18.2).

Within another area of the gallery, a twist to the robotic system is introduced when a viewer takes the initiative to engage in the installation by sitting in a red tongue-chair. The viewer—now the interactant—participates to create a complex and dynamic feedback loop. When an interactant sits in the chair, the dopamine becomes a trigger to initiate the physical pleasuring of the human. The artificial stomach first controls and activates the robotic tongue and second, if the bacteria within the artificial stomach is healthy and reproducing, the robotic tongue-chair senses the presence of the interactant and reclines and delivers a 15-min massage. If the bacteria is not healthy, it severs the potential for the system to loop and the chair does not move. When the interactant leaves the chair the robot tongue returns to an upright position and the installation resets and awaits another interactant. The

Fig. 18.2 Dopamine dripping from a robotic tongue. Enteric Consciousness 2010, Ken Rinaldo (installation detail). Commissioned by Maison d'Ailleurs, Musée de la science-fiction, de l'utopie et des voyages extraordinaires, curated by Patrick Gyger (Photo: Joana Abriel)

aesthetic impulse of the viewer is to interact—by sitting in the chair— and thus provides the larger autopoietic system to be set into motion. The conduct of each organism corresponds to a description of the behavior of its partner. The outcome provides the potential for a pleasurable experience to the body but does not guarantee this outcome.

This installation is full of experiential feedback loops. The massage helps to reduce stress hormone levels, which in turn, can actively reduce the incidence of intestinal disorders in the human gut. In this way, the installation strongly implies a medicinal relationship between pleasure to body and the aesthetic pleasure of art. Another loop is the embodied self-awareness of the installation's own activities through the expressed relation between perception and action. As Alva Noë reminds us:

> For perceptual sensation to constitute experience–that is, for it to have genuine representational content–the perceiver must process and make use of sensorimotor knowledge ([9], 17).

Embodied knowledge must be active, Noë argues. This involves an aesthetic sense in action—a pushing out from sensorial parts and a soaking in of contingent parts. Furthermore, Noë presents the argument that normal vision depends not only on the movement of the body relative to the environment, but also on one's self-actuated movement. So we must do to know.

Rinaldo's installation positions the interactant to consider their own embodied behaviors. This self-actuated feedback loop is one that is created through the extension of the body with mechanical devices, the smell and taste of chocolate, and externalized dopamine triggers. As she lays in the chair, the interactant body

expands and contracts claiming prosthetic identity and altering physiological identity. Author of the blog Edible Geography Nicola Twilley, describes Rinaldo's installation as a negotiation of the human body with the bacteria that live within it. She writes,

As well as interacting with the mood-altering chemicals in food, the enteric nervous system also communicates with the trillions of bacteria that live alongside them in the gut, digesting our food and boosting our immune systems [12]. Rinaldo sees the robotic tongue and the massage chair not merely as mechanical trigger devices but as ways to support the enteric nervous system itself in an act of self-awareness. As the brain spreads down away from cranium through the spine and into the gut, the interactant experiences the phenomenological play of ideas as body. It is a bringing forward of our chemical consciousness, an undulation ripping up and down the central nervous system in our own internal massage. The brain of the gut radiates back up through the nervous system and fills our senses.

Within each human body, the living bacteria Lactobacillus Acidophilus outnumber human biological cells by ten to one. They are, unto their own, an autopoietic network: an entirely non-human and non-hereditary adaptive technology, seamlessly and symbiotically incorporated into our bodies to metabolize nutrients, regulate fat storage, and even train the developing immune system. When the bacteria in Rinaldo's installation are introduced to the artificial stomach, we can see these bacteria also reach beyond the behaviors of their own workings. While sustaining the integrity of their own system, they couple and negotiate with both the artificial stomach and the massage chair. Then, we feel it of ourselves. Just as the digestive state of our enteric system determines the circuitry of our own neurotransmitters and receptors, so does the digestive state of the installation control the symbiotic relationship within the autopoietic exchange.

Varela originally proposed the following question: To what extent can human social phenomenology be seen as a biological phenomenology? Rinaldo's work addresses this question by creating an environment where our organs no longer belong only to a singular functionality, and where the self-realization of an external circulatory system becomes an aesthetic pleasure. In this way, autopoietics surpass the realm of a historical biology and reveal aesthetics as a simultaneously autonomic and dependent process. To adequately understand living organisms in this paradox, Varela and Rinaldo both claim that living systems are self-producing machines. This leads to the observation that living beings are structure-determined systems. This may be a difficult concept to reconcile with our historical notions of artistic creativity, but it is essential in the critique of the post-biological aesthetic: what once determined beauty has once again transformed our relationship to our own selves. Consequently, this challenges us to rethink our assumptions about what "creativity" is and how it works. Creativity may be uniquely human, but it depends on individual agency. So, in the autopoietic understanding of Rinaldo's installation, creativity cannot arise for the interactant without the mechanical devices that make up a large component of the interactive event.

Vague Organ

An autopoietic understanding of individual parts of the human body fits neatly into their physiological functioning. Like the relationship between the gallbladder and the liver, they look to each other for their own functioning. But in human evolution, the use of the gallbladder as a biliary vesicle for the liver has proved to be somewhat outdated for the function of digestion. The removal of this organ in humans is usually easily tolerated, with the liver taking over the emulsification of fats. There are many organs for which evisceration does not kill or severely alter the overall functioning success of the body. As a profound example, it is not unusual for lobectomies to be executed on portions of the brain for the control of severe epilepsy; the reassignment of brain functioning to other parts of the brain after the removal is far more common than previously imagined. The brain can reassign many processes to other neural pathways or can create new ones to accommodate the altered load. This is a procedure that is done on a smaller scale every day to accommodate a myriad of functional changes like fever, stress, or depression. The reassignment of functions within our organs appears to be far more fluid than once imagined, making organs and their functioning evermore ambiguous and elusive.

Simon Penny, an interactive sculptor, produces works at the elusive edge of organs. Penny and his team build structures that emulate human non-speech vocal sounds, developing lung-like machines, larynx-like devices, and vocal tract-like structures that focus on the functionality rather than the forms of particular organs. In his Phatus Project, there are assemblages of disquieting devices that laugh, cry, moan, rage, and sigh. The relation between the embodied nature of affect are critical. Emotions are, in some sense, of the body first and of language second. And this is an important aesthetic focus for Penny. The creation of sculptures that act as primitive sound machines encourages reflection on the paradigms of our own embodiment without the abstraction of language (Fig. 18.3).

Phatus Project involves prototype lung/bellows machines, and microcontroller-based electromechanical process control systems. Penny claims twentieth century research has been preoccupied with communication through semantic means, largely ignoring other aspects of human vocalization [10]. Both the body and its parts hold multiple meanings that offer alternatives not only to language but also to full body expressions, suggesting a scalable aspect to the autopoietic exchange, surpassing the realm of biological functionality (Fig. 18.4).

The robotic artworks created by both Rinaldo and Penny present the intentionality of an aesthetic developed from post-biological or hybrid art. It is important that these artworks are not critiqued as simulations: Penny's sculptures are not models of particular organs, and Rinaldo's installations are not meant to explain how chemicals travel through the enteric system. These works are vague by design, allowing them their own place in the world. They are aesthetic objects that, when engaged with an interactant, create essentially the only experience of their kinds. It is within the acts of pushing and pulling with our own body forms that meaning emerges and a fresh act of participation is created.

Fig. 18.3 Phatus 1 Elephant Celibitaire. Part of Phatus Project (mechanico-pneumatic voice synthesis machines), Simon Penny. 2010–2101 (Photo: Simon Penny)

Fig. 18.4 Phatus ll Part of Phatus Project (mechanico-pneumatic voice synthesis machines), Simon Penny. Work in progress, August 12, 1 2012 (Photo: Simon Penny)

Emergent Behavior

Applied to aesthetics, autopoiesis replaces an external "objective" view of art with an internal relativistic understanding of experiencing art. To a degree, the observer and the art object become co-organizers in an evolutionary system of patterns within the interactive artwork, creating an aesthetic or heightened appreciation of the ever-present phenomena of emergence. Heidegger's possibility of always becoming is at work in this relationship between interactant and artwork through its temporal and historical character of a coming-into-being. Placing aesthetics within a phenomenological ontology challenges the established relationship between viewer and object, a relationship that often keeps high art in a developmental stranglehold. For Heidegger, beings are not originally constituted in an individual consciousness. On the contrary, the starting point for every being is Dasein, an active bringing-into-being that includes the phenomenological locators of history and the embracing of temporality as in the experiences provided by the installations by Rinaldo and Penny. The interactant is always a participant and, as such, can never sustain a singular finality of form. The implications of this ontology suggest many pressure points between contemporary aesthetics as opportunity for social rupture, with autopoiesis as a system of negotiations. How we come to an event and what constitutes aesthetics is, in large part, what interactive artists are creating for their interactants.

The autopoietic aesthetic arises, then, from interaction within an art system. This may include multiple self-propelled entities, such as mechanically-driven devices and other human participants, each of which is in negotiation to render out aesthetic expression. Expression can occur through a variety of systems created through the mechanical comingling of biological forms. The implicit order of an autopoietic aesthetic is the relation between the external coherence of a phenomenon to what is imagined as external or, in social terms, the other. This creates a kind of arena in which a variety of systems of thought and action may potentially communicate, cooperate, and engage in both conflict and negotiation. The autopoietic aesthetic arena can be understood, therefore, as a dynamic multi-functional set of systems with a variety of ways to create ideas and experience the world. The arena is implicitly process-driven, performative, and highly experiential because it is built on models of consciousness with properties that focus on the entire thought process rather than on a singular outcome. This arena constitutes a topological domain that shifts the subject of contemporary aesthetics from a thing to a situation—from an object to an intentionality. Without the need to distinguish life from the mechanical, physical, or virtual, autopoiesis deploys a design and purpose found in human action that is always coupled to an extrinsic system. As such, the autopoietic aesthetic arena is a fundamental shift from the traditional notion of aesthetics, in which aesthetics functions solely as the object of human appreciation. It applies a new understanding of aesthetics as a comingling and inherent function of systems that possess a multitude of purposes and outcomes. The aesthetic appreciation arises when we involve ourselves inside the system's processes—a journey to immerse within and to feel the participation of an aesthetically designed emergent function.

As it becomes increasingly difficult, and perhaps less relevant, to distinguish between the biological and the mechanical, an autopoietic perspective assists in the unification of these distinctions. From an autopoietic perspective, a form is not evaluated only on its material property, but also on the basis of its functionality. The autopoietic process involves individual entities negotiating a self-propelled exchange between demarcated systems, usually undertaken to provide each participant with some sort of self-sustaining or evolutionary opportunity. For instance, when the interactant enjoys the play of system participation in Rinaldo's installation, it creates a sustaining interest and feeds input to the artwork, which in turn keeps processing the tasks of its design to distribute dopamine. The pre-designed objective of the installation is to sustain its own level of activity—that is, to create potential for the massage chair. It is the interaction from the interactant that affords this as a kind of probe or stimulation. In this way, the focus is as much on the chair as it is the interactant, an essential component of autopoetic systems. The choices available within each autonomous system tend to be, upon initial evaluation, merely self-serving and leading to a solipsistic epistemology. Autopoietic systems, however, must interact in order to survive, and in doing so they must form a kind of negotiated space with others. This is key to the power of the autopoietic aesthetic, which is both autonomous and able to involve, or even entice, other systems to engage.

A self-organizing mechanical system has a self-purposefulness when it is intentionally designed with the foresight to sustain its own functioning. From this perspective, both machines and people have properties of self-motivation and self-action. Built on the ethical premise that humankind cannot own living systems, autopoiesis is an equal exchange for a living system to secure "the crucial qualities of autonomy and individuality" ([5], 142). In her argument for autopoiesis, Hayles reminds us that part of Humberto Maturana's original use of the term is that we would see all individuals as equals. As such, the exchange between a participant and an autopoietic work of art should be considered an equal relationship. Autopoietic artworks are therefore positioned within a larger system of evolutionary forms that struggle to coexist, rather than as part of a relationship in which one form takes from another. This struggle can be observed in the imperfections of equality inherent in any interaction, but one that Maturana argues is far more equal than that of the Enlightenment Subject.

In *Autopoiesis and Cognition*, Varela refers to both biological and mechanical forms as he argues for autopoiesis as a living presence:

> Autopoiesis in the physical space is necessary and sufficient to characterize a system as a living system … hence, the biological phenomenology is the phenomenology of autopoietic systems in the physical space ([7], 112).

The physical space that Varela references is also found in the autopoietic unity of what he describes as a living machine ([7], 112). When we, as observers of art, interact with an autopoietic machine, we see both its functioning and its exchange response, which acts as a register for presence. The exchange is both an instrument and an outcome. Built into the outcome is a functional quest to reach beyond one's

own sense of autonomy in order to search for a more complete experience. This exchange also moves the aesthetic experience away from the imperializing gaze of high art toward an exchangeable negotiation between participants.

In the pursuit of authenticity in the aesthetic experience, autopoiesis operates as a solitary state that looks to itself as a trigger. If a system refers only to itself, how does it interact with anything but itself? The key to unlocking the autonomous meaning, in this case, is to reconceptualize the notion of "interaction." The function of self-reproduction in a biological autopoietic system, such as a flower, for example, necessitates interaction between structural elements of the stem to grow tall enough to catch the sun. In order for this flower to sustain life, it must grow tall enough to catch the wind and lure the bugs that will use their locomotive abilities to carry the pollen away. Built into natural autopoiesis, then, is a state of negotiated action between agents. The cell membrane that makes up the flower stem is able to hold the structure together while being permeable, sharing in a thermodynamic exchange of matter and energy with both neighboring cells and the surrounding environment. In order to sustain its own autonomy, this permeable cell wall participates in an arrangement of interaction with the world while fulfilling its self-sustainable needs.

An aesthetic autopoietic system therefore, focuses on the process rather than the form of the object. The aesthetic autopoietic system also positions the art observer as part of the evolutionary emergence of everything that is part of our own identity. In a similar process and in the action of experience, we are both an autonomous self (unique in form and character) and an interlocking self (created by relationships) though the effects of engaging with interactive art. Art-as-life can be viewed as an endless search for exchange. Acts of exchange allow moments of consciousness and the reflexivity of introspection. In neuroscience, one can detect that it is gesture that leads to a kinetic resonance in each individual brain cell. As one brain cell makes contact with other brain cells, there is a compulsive need to create ordered relationships—the gesture that creates the patterns that form from groups of cells. Through a physical gesture, a single excitable cell resonates outward into the larger primordial openness of the life world and literally turns on neighboring cells. This openness is full of potential is what neuroscientist Daniel Dennet calls the qualia, and what phenomenologist Merleau-Ponty describes as the *Lebenswelt*. At the same time, each cell receives life force from the larger social sphere. If we can accept this phenomenological exchange of human experience, existence may be essentially perceived as co-existence. Interactivity becomes the choice and the aim of this coupling, and works as a trigger to awaken consciousness. Interactivity is therefore, both an instrument and an outcome: it is a desire to reach beyond one's own sense of autonomy in order to establish contact with the general condition of reality. Interactivity is also integral to the mechanics of self-sustainability. It is the aim of coupling, and works as a trigger to awaken a system at both the level of individual introspection and that of a whole world relationship. Perhaps we have come to a historic moment that rejects distinctions between the life of the viewer and the life of the artwork. The life of the mechanical and life of the biological can appear similar, particularly when viewed from within the dynamics of autopoiesis. From this post-biological position, a new symbiosis of interactivity in art has emerged.

Investigation

The installation Autopoiesis, an earlier work by Rinaldo, is a collection of intra-active robotic arms that connect to each other through a closed software system. In this artwork, autopoiesis refers to a system that can be considered part flesh and part machine. Robotic arms built from twigs and mechanical parts stay busy communicating with each other through a distributed computer network. When multiple robotic arms interact, they do so in ways analogous to higher-order, structurally based systems, such as the relationship among neurons structuring cognitive activities. The gesticulating arms of Rinaldo's artwork use telephone tones as a "language" to "communicate" among themselves. On each arm, a series of light-emitting diodes signals the status of information input and exchange among the group. Computer-controlled feedback loops, smart sensor configurations, and randomization algorithms produce and control movement. As in the biological, neural, and growth structures found in evolution, the artwork creates its own internal stasis, the effect of which is a continuous exchange. The arms need to know where they exist in space so that they do not collide into a visitor in the installation space. For this reason, they track anything or anyone that enters the space. Their domain is defined by the spatial limitation of the installation, which they are unable to physically extend. This spatial domain is not unlike that of rooted organic systems, such as a forest of trees or a cluster of synapses connecting the cells of a brain. The systematic and distributed communication mechanisms of the arms provide a complex comingling of resources and information. The individual arms can see and feel through cameras and sensors and are able to make autonomous choices on where to go and how to expend energy. At the same time, the system as a whole is able to strategize, remaining a singular entity that is self-contained and self-motivated. This autopoietic drive, the ability to negotiate an improvised coupling with the observer's determinant input, becomes a central agent in the production of the aesthetic experience. The need for interaction propels the autopoietic beyond homeostasis into acts of investigation. The system works of its own accord—the internal equilibrium of the meta-system is full of adaptive responses that cannot be accounted for at any given time. While control mechanisms function to affect internal steady states, there is always the potential to move into the improvisational unknown of the interactive moment (Fig. 18.5).

All autopoietic systems must give way to how living entities move through time. At each moment, they remain in constant negotiation with any other systems that they come in contact with. When interactants approach Rinaldo's Autopoiesis, the system breaks out of its own repetitive behavior of looking at itself and reacts to something outside of itself. The robotic arms inspect the bodies of visitors using on-board cameras and sensors. One arm communicates with the next until all of them are aware that there is a foreign body among them. Each arm moves close but is careful not to actually touch the interactant. The robotic instinct is one of invasion and survival. The experience of interaction is one of care and uncertainty. The parts as a whole—human, machine, software, and triggering devices—comingle in a state of uneasiness. The machine can be described as a unique independent entity, as can the human observer.

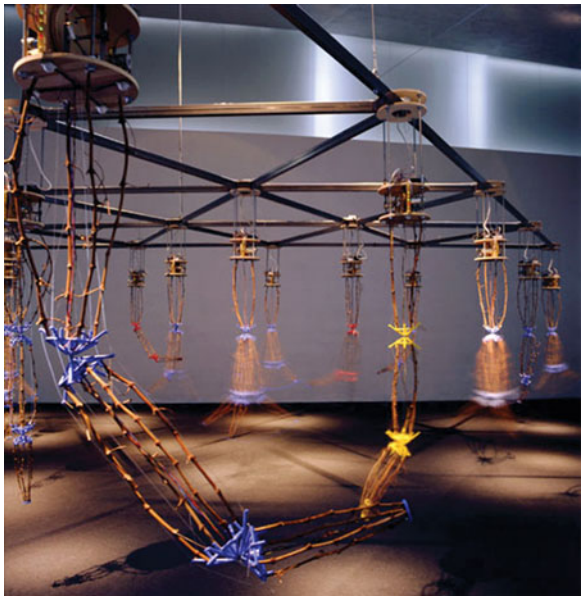

Fig. 18.5 Autopoiesis, Ken Rinaldo. 2000. The intra-action of robotic arms connecting with each other through a closed software system (Photo: Ken Rinaldo)

Rinaldo's artwork is generally placed within the movement of generative art, a system-oriented practice in which the common denominator is the use of living systems as a production method. Unlike many art movements that have focused on the natural form, generative art relies upon the structurally coupled relationship of a self-sustained internal processing and an external mechanical functioning of the artwork. Rinaldo references aesthetics within a biological schema. His aesthetic systems behave in ways that alter how we physically interact with them. Although the closed system of Autopoiesis can be experienced as complete within itself, the interactant can also alter this system. This physical interaction, in turn, enfolds the interactant within the totality of a new sensory-motor system that is a hybrid of both the mechanical autopoietic system and the open potential of a biological system. In this way, a seemingly closed system can acquire permeable boundaries, opening up to the larger phenomenological world. When stimulated, this artificial "living" system will reorganize internally, making itself unique, reflexive, and self-perpetuating—all in response to the diverse actions of the given interactant. As illustrated by Rinaldo's work, an autopoietic system is a closed system with permeable boundaries that functions autonomously. This type of system becomes an operationally open "life form" when coupled with its phenomenological environment through interactivity. As both a closed system and an open life form, the mechanical and structural elements of Autopoiesis mimic biological processes, making those processes, in turn, the subject of aesthetic reflection.

In describing the biology of cognition, Maturana begins his introduction to a description of autopoiesis by saying that:

> The space defined by an autopoietic system is self-contained and cannot be described by using dimensions that define another space. When we refer to our interactions with a concrete autopoietic system, however, we project this system on the space of our manipulations and make a description of this projection ([7], 89).

According to both Maturana and Varela, autopoiesis is a homeostatic circular system. A self-sustaining property of autopoiesis is built directly into Rinaldo's installation within the physical and technological elements. Each is configured to allow communication with and for the other, using only rule-based procedures provided by software. The system of arms in Rinaldo's installation functions to communicate with itself; the movements that emerge from the arms of the sculpture are outcomes of an action set upon itself.

Interactive art, such as Rinaldo's, suggests that the patterns of interaction that serve as the foundation of the phenomenological field are also found within structural patterns of the body. It is the "interactive gesture" of the interactant that relies upon the embodied patterns of action and reaction. Contemporary artists, such as Rinaldo, appear to intuit these internal patterns and develop artworks with interactive elements that complement these patterns in a way that elicits and engages the viewer's patterns of cognition. This is substantiated by the ability of these artworks to induce sensorial experience in viewers. Through the autopoietic lens, the interactive aesthetic relies less on what an artwork looks like and more on the phenomenological embodied patterns of action and reaction the artwork stimulates between the viewer and sculpture. By such means, experience becomes physically accessible for contemplation and enables us to perceive ourselves perceiving.

Control

Simon Penny's Petit Mal is, in some sense, an anti-robot because it is truly autonomous. Most conventional robots are elaborations of John von Neumann's notion of the universal machine, in which the physical machine is simply a void to be filled with software content. This attitude within robotics is an unfortunate application of the Cartesian idea of the mind-body split, wherein the mind is imagined to produce intentions that the body then fulfills (Fig. 18.6).

Petit Mal is a very busy machine. With only two wheels and a counter balance, it is in a constant state of trying to keep its own body upright. This balancing is a way of existence for the machine—the constant checking and adjusting just to remain upright uses most of its possessing power. Petit Mal also has a secondary function, which is to find any physical obstacles in the room that may make this work of staying upright more difficult. Things that do not move, like walls or stationary objects, are observed with a camera and calculated as structures to avoid. Moving objects such as people, are less manageable. The robot must spend time calculating the location of the moving object, as coming into contact, or even coming too close, may potentially throw off its balance. This, however, is processing time taken away from the functionality to stay upright. Within this paradox is the irony of the robot's existence. It must search to survive but this very search makes it ever more difficult to sustain its own balance. This is an autopoietic conundrum: for existence, every system must look away from its own self and in this way, Petit Mal opposes a dual system of experience as it must do both. In other words, when Petit Mal is roaming about, it is impossible to distinguish where the interactant leaves off an action and where the robot picks up a response.

Fig. 18.6 Petit Mal A robotic momentary loss of consciousness, Simon Penny. 1989–1995. Smile Machines, Transmediale 2006. Akademie der Künste, Berlin. Curated by Anne Marie Duguet (Photo: Simon Penny)

You could say that Petit Mal is an autonomous agent and a realization of an artificial life entity. Not simply in the sense that it manifests some behavior that is life-like, but that it has a bottom-up logic – it doesn't conform to a traditional artificial intelligence way of viewing the world, sometimes referred to as the sense-map-plan-act paradigm. It is reactive in the way that an insect or an animal is reactive. It is consistent with reactive robotics, which was a response to the over-reasoned over-complex computational solutions of the previous generation of artificial intelligence [6].

Penny explains that the behavior of the robot is built upon a reactive paradigm and this is not something that can be described by software or hardware alone. Petit Mal's behavior arises from the dynamics of body within the world—a notion that introduces the phenomenological aspect as a seminal component of the system's functioning. In other words, it takes a dynamic world of situations to make sense of action. While hardware and software work in a seamless continuity consistent with autopoietic systems, it is the evocation of body sensations and operations that fulfills the desire of action.

A cognitive reading of Petit Mal would present the artwork as temporalizing involuntary participation in the world. The artwork is not projected from the gaze, as we see in Rinaldo's installations, but rather actively disrupts the gaze, intentionally generating disequilibrium. The artwork's action implicates both the sculpture and the participant in the search for stasis. In neurological terminology, a petit mal inhibits and mimics momentary loss of consciousness. It is important that the Petit Mal sculpture presents itself as just a little out of control. Petit Mal's always becoming is a reaction to oppressive theories of control In fact, Penny (personal communication with author, September 23, 1992) describes this robot as an engineering

nightmare. Although Petit Mal's mechanical structure is inherently stable, it has a chaotic motion generator at its heart, with a double pendulum offsetting its center of gravity, thereby creating a range of unpredictable motion. By design, the robot relies on its own movement through time and space to find balance. At any given moment, it is wildly out of balance and barely in control. But when Petit Mal meets up with an interactant, a new kind of phenomenon occurs that takes the individual out of its own sphere of potential. Cooperation between robot and interactant helps to release the egocentric bias in individuals. Indeed, the pull of mimicry in one's actions is such that the other's actions seem invitations for the self to participate. Often applied to contemporary aesthetics, this participatory model allows cooperation, rather than mastery over the object, to become the reflexive and preferred act of aesthetic exchange.

(Auto)Reaction

Penny's Petit Mal creates a simulation through action. Because the (auto)action of Petit Mal is consistently unexpected, the viewer positions herself in a manner that poses the physical first. Anne-Marie Duguet delineates this dynamic in the introduction to the catalog of the 2006 Transmediale exhibition. In Duguet's view, the action of constant adjustment to the viewing state brings out the humanness of the viewer, triggering emotions and a desire for connection. Moreover, the viewer is placed in the position of playing "catch-up" to the interaction and becomes subservient to the nature of the robot's behavior, another unexpected reversal:

> …a trace of autonomy is perceptible, all this non-resemblance falls into oblivion and a "human effect" is activated, inciting the viewer to project endlessly. Thus, the object of humor may become the viewer himself interpreting a slight step back as fear, and a step forward as curiosity. Sensitive to the environment, capable to diversify and to involve its reactions, the robot tries to have a relationship to the human being, and this relationship is constituted from the beginning as a human relationship, one of domination or of sympathy. The robot is no longer the slave, it enslaves the other. This kind of reversal is a satire of human psychology and of the expression of the platitude of the threat that represents the development of such autonomous "creatures" for the human being [2].

According to Duguet, the viewer must rely on the action of Petit Mal for the aesthetic experience. It is the "stepback/stepforward" positing of the viewer, however, which creates an uneven projection oscillating between fear and curiosity. Confusion arises from this unexpected negotiation and a dance to find a homeostatic balance ensues. Duguet defines an interaction that is far from one of cooperation—she continues to rely upon a dual system of experience by setting the robot up again the interactant and vice versa. The traditional narrative that underpins human psychology is not well equipped to take on the subtle attributions of the robotic aesthetic. This is an excellent example of why an autopoietic aesthetic is a valuable lens for critiquing contemporary art. In neuroscience, the physical action of reaching and pulling within one's own body is also a brain-generated simulation, a feeding back

of experience into the temporal regions. The temporal regions are believed to be the caretaker of our senses and our emotions. In these regions, what we feel is neurologically mapped with what we experience. Petit Mal reminds us that behavior evolves. Perhaps, in the play between the two sentient forms of robot and interactant, we realize that each is reliant upon the other for mutual evolution. We also come to understand that interactive art leaves the viewer to experience certain things that lead to reflection and, then, to other experiences. Through the intelligence of embodiment, such installations highlight how the enactment of the physical shapes the psychological and constitutes another way in which we express ourselves.

Using this neuroscientific ontology, interactive art develops through the systems of self-reflexive connections that exist between the forms of the autopoietic object and the observer. The use of an autopoietic mechanism, along with the observational learning that occurs with structural functions provides a method for identifying material for thought and new knowledge. In this way, interactive aesthetics moves cyclically from the outer manifestations of human action to inner meaning and back out again to the aesthetic interface, in endless circulation without loss of autonomy. It is evident that experience and expression cannot be neatly separated. The singularity of perception dissolves as meanings emerge into the world of experience through biophysical co-evolution. The many varieties of exchange describing the autopoiesis aesthetic are entangled within this force.

Autopoietic Experience

It is only in response to perturbations by the environment or medium in which it exists that a cell will adapt or evolve to maintain the structural integrity of its components. A mechanical autopoietic system also goes about its business until human interaction creates a disturbance within that experience. Contemporary art deploys some of the same phenomena that neuroscience has shown us about brain functioning, such as coherence, long-range interactions, non-linearity, self-organization, self-regulation, communication networks, and non-locality. Interactive art matches the cognitive attributes of a coming-to-being in an already expected moment. The reflexive experience of an aesthetic consciousness can be understood as a fast forwarding of the mind's activities to catch up to that which is about the occur. In the collapse between the object and the observer, on this new modeling of an event, there is a transformative negotiation of the interactive moment embodied in both machine and biology. Because Varela's embodied mind is directly associated with the embodied machine, we have an expanded understanding of self or, perhaps, more precisely, a distributed self that occurs within a system of individuality.

Arguments about embodied minds, to some degree, are still weighed down with an implicit dualism because of the focus on the body as thing rather than agent. The idea of the distributed self posits that the self exists within, because of, and with affect upon, various networks of relative agency at large. The self does not exist in this context as an identifiable thing but rather, as Heidegger offers, an ever-emergent phenomenon that appears to have only some degree of coherence.

Autopoiesis offers us a kind of co-evolution among species and living/non-living systems in which art and viewer are part of the same system of experience. In this way, autopoiesis poses a question about the end of simulation, because we can understand experience as an interacting system, rather than one being a reflection of another. As hybrid systems that must interface with the larger environmental arena, systems of autopoiesis can no longer be considered simply another kind of other. Some aspects of their functioning may reference only their internal qualities, but total success relies on the materiality of a larger existence, beyond insular feedback mechanisms. The interactions of Rinaldo's individual robotic arms, for example, are defined by a set of rules for their behavior, both individually and collectively, which can be considered their structural identity—or, as Varela states, "The structural identity in this physical sense is what defines the structural identity of actions" ([13], 101). This identity brings together two tenets of autopoiesis. First, nothing is a model for anything else; everything has its own essence. Second, locomotion of the singular always comingles with the locomotion of the other. Through this, the mind being internally coherent, the world "comes up" to being through the sheer confusion of experience. Yet, the sensation of a stable reality emerges from the clash of the internal and the external. The brain looks for these points of placidity in every moment to create stable arena of perception.

According to Varela, evolution has less to do with getting better through adaptation and more to do with what we choose through experience. The tempo-spatial mechanisms of material form, such as a brain cell or a kinetic sculpture, give the moment its character and behavior. As a cell grows and lives, it develops all of its necessary life functions and continues to do so until it dies and the autopoietic cycle ceases. One similarity between a living cell and a mechanical autopoietic system is the cell's inability to make qualitative judgments about survival without an external connection. For instance, the cell takes in chemicals for growth, but to the cell's components there is no real difference between food and a toxin. They are both intrusions that effect the efficacy of self-propagation, favorably or not. In both cases, the autopoietic system must also be reflexive upon the larger arena of interaction. Aesthetic autopoiesis is a contemporary observation that simultaneously presents this multiple truth. The autonomy and resiliency of art as part of its own identity is also, to a certain degree, its own non-identity.

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Chapter 19
No Neuron Is an Island: A Neuroaesthetic Inquiry into Omer Fast's Mimetic Interactions

Sally McKay

Abstract Neuroaesthetic research tends to support a form of Cartesian dichotomy between conscious and nonconscious processes. I propose that some artworks, considered in art contexts, can produce embodied forms of aesthetic knowledge that are inaccessible in the epistemological context of the fMRI lab. In my critical approach to neuroaesthetics, I trouble hierarchical dichotomies between conscious and nonconscious processes, positioning mind as a physiological process that is not isolated in a brain, but fully embodied and co-constitutive with worldly, social in-teractions. In this essay, I examine the neuroscientific literature on mirror neurons as it informs a critical neuroaesthetic analysis of Fast's *Talk Show*, which in itself facilitates embodied forms of knowledge through reflexive, mimetic engagement.

Keywords Neuroaesthetics • Embodied mind thesis • Anti-dualism • Aesthetic experience

How can contemporary conceptual artworks inform discourse on embodied mind? Addressing this question, I will conduct a neuroaesthetic inquiry into a video by contemporary artist Omer Fast, theorizing that the artwork facilitates embodied knowledge about perceptual cognition. Since the late twentieth century, art historians and neuroscientists have been studying art and the brain under the name of neuroaesthetics. Art historians conduct their primary research in galleries and museums, seeking to understand artworks in the cultural contexts of the eras in which they were created, while neuroscientists do primary research in labs, seeking to understand the workings of the brain. Thus, the practices of art history and neuroscience are methodologically and epistemologically distinct. Both, however, produce detailed analysis of material objects, and both inquire into interconnections between sense perception and cultural knowledge. Under the interdisciplinary umbrella of neuroaesthetics, the art history and neuroscience rub up against one

S. McKay (✉)
Faculty of Fine Arts, York University, Toronto, Canada
e-mail: sal.mckay@sympatico.ca

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another; provoking critical questions while simultaneously addressing lacunae produced by the other's methodological constraints.

Neuroscientific research, however, holds a vaunted position of authority in contemporary Western society, and much of the neuroaesthetic literature to date privileges neuroscience as having greater access to fundamental truths about material reality than art history and art theory. Furthermore, while the materialism of neuroscience informs inquiries into the embodied experience of art, the ideology of biological determinism occasionally invoked under the name of neuroaesthetics threatens to relegate aesthetic experience exclusively to the non-conscious level. I hope to problematize this tendency of neuroaesthetics to privilege the non-conscious by analyzing artworks, in this case Fast's *Talk Show*, that facilitate conscious awareness of perception itself. Thus, in this essay, I aim to demonstrate how *Talk Show* supports notions of embodied mind by challenging deterministic and reductive assumptions about the causal role of cellular activity in the brain.

The notion of embodiment activates my neuroaesthetic investigations. Indeed, I embrace the neuroscientific premise that mind constitutes a physiological process.[1] The term "embodied," however, also serves as a reminder of critical shifts underway in neuro- and cognitive science to reject models of the brain as a mechanism operating in isolation. The book *The Embodied Mind: Cognitive Science and Human Experience* [23]—co-written by a cognitive scientist, a philosopher and a psychologist—addresses fundamental problems in the empirical study of consciousness by drawing connections between Western and Eastern philosophical traditions as they inform cognitive science. The authors redress a Western cultural condition in which scientific explanations of consciousness are ascribed with more authority than immediate experience. Scientists studying consciousness face the methodological challenge that no observer can empirically verify another's conscious experience. The solution, according to the authors, is not to bracket off experience from observable behaviour, but to embrace an understanding that "cognition is not a representation of a pregiven world by a pregiven mind but is rather the enactment of a world and a mind on the basis of a history of the variety of actions that a being in the world performs" ([23], p. 9). In other words, cognition is an active, rather than a passive, process, and cannot be reified in isolation from other ongoing processes of interaction and engagement. In cognitive science and philosophy of mind, the term "embodied" invokes not just the entangled associations of the brain with the rest of the body, but with the external world as well. In my usage, then, the term "embodied" refers to the ongoing entanglement of collective cultural knowledge within individual acts of perception and thus informs my proposition that artworks themselves can facilitate knowledges as vital to neuroaesthetic research as those produced by neuro-imaging studies conducted in science labs.

[1] Even neuroscientist Antonio Damasio—who troubles the neuroscientific convention that mind is a product of the brain alone by examining the significant role of the rest of the body in formulating mental processes—operates on the premise that "mind depends on brain-body interactions," firmly asserting the physiological dimension of mental activity. [Antonio Damasio, Descartes' Error, (International: Penguin Books, c. 1994, 2006), 225.]

Talk Show, I suggest, brings such embodied experiences into conscious awareness for audiences by asking them to make active decisions about how deeply to engage with the affective, mimetic qualities of the work.

While *Talk Show* uses the medium of verbal language to convey contents, it also makes an emphatic, non-linguistic address through the process of mimesis, or what affect theorist Anna Gibbs would call "mimetic communication," meaning, "corporeally based forms of imitation, both voluntary and involuntary" ([9], p. 186). Mimesis has been thoroughly examined in the humanities as a mode of representation, but the concept has recently re-emerged in cognitive science ([5], pp. 283–300), affect theory ([9], pp. 186–205), and neuroaesthetics ([22], pp. 75–104) as a mode of embodied communication. Current mimetic theory is informed by theoretical developments in neuro- and cognitive science. As I shall explain in detail, mirror neuron theory emerged from the neuroscientific discovery of small groups of neurons that fire the same way when a subject performs an action as when the subject observes another performing the action. Simulation theory, from cognitive science, also intersects with mimesis because it suggests that people internally simulate the physiological states of others in order to understand those others' states of mind ([10], pp. vii–viii). Because these internal simulations are understood to happen both consciously and nonconsciously, simulation theory informs neuroaesthetics by positing an embodied mode of engagement that is activated by choice. The discovery of mirror neurons supports simulation theory by demonstrating that physiological processes of imitation are triggered in the brains of observers. Early mirror neuron research, however, was delivered with strong causal claims for mirror neurons as the determining agents of non-verbal communication. As I shall explain, recent interdisciplinary developments have shifted the discourse so that mirror neurons are increasingly positioned as elements integrated into broader, nonhierarchical neural networks. I hope to demonstrate that the changing rhetoric around mirror neurons supports considerations of conscious choice as a physiological process that catalyzes the embodied aesthetics facilitated by *Talk Show*.

Talk Show presents a series of mimetic performances, each building on the last, that conflate fact/fiction dichotomies and implicate audiences as they bear witness to a radically shifting narrative. The video opens on set designed like a television talk show (Fig. 19.1), with a "guest," Lisa Ramaci, telling her gripping, true-life story to the "host," played by actor Rosi Perez. Ramaci's husband, Steven, an American journalist, was investigating the American war in Iraq with the help of a young Iraqi translator named Nour. Their work placed Nour's life in danger, so Ramaci and her husband hatched a plan—Steven would convert to Islam, marry Nour and bring her safely out of Iraq. But then Nour and Steven were kidnapped. Both were beaten and shot—Steven died and Nour survived. After this tragedy, Ramaci worked hard to get Nour out of Iraq and eventually the young woman came to stay with her in New York.

When Ramaci is finished describing these experiences she leaves the stage, and another actor enters. Now Jill Clayburgh performs as the "host" and Perez acts as the "guest" who tries to re-tell Ramaci's story from memory, embodying the narrative as if it were her own. After Perez, it is Clayburgh's turn to tell the story, and the

Fig. 19.1 Omer Fast, Talk Show, 2009. 3-Channel Video Installation, 86 min (Courtesy of the artist and Arratia Beer)

process continues with a series of actors —Tom Noonan, Dave Hill, Lili Taylor and David Margulies —switching roles in sequence, until Ramaci, who has been out of earshot the entire time, returns to act as "host" for the final act.

Like a broken telephone game, the actors drop details from the narrative and introduce new ones on the fly, so that Ramaci's story quickly unravels into a series of inventive fictions. The process is distressing, as the noble selflessness and political activism expressed by Ramaci quickly devolve into a series of sordid tales about adultery and betrayal. But something else is also happening. It soon becomes apparent that the affective intensity of the various "hosts" derives, in part from their own doomed attempts to commit the story they are hearing to memory. When the "hosts" become "guests" their behaviours are charged with the intensity of improvisation. Their words indicate when they are forgetting and fabricating, but their nonverbal gestures and facial expressions contribute a visceral veracity to the fictions they convey. Throughout the process the audience bears witness to all stages in the narrative transformation. Each time a new actor launches into their imperfectly remembered and affectively embellished version of the story, the audience is challenged to examine their own roles as complicit participants in the transformation of Ramaci's narrative. Most of the actors—all of whom are professionals—make very convincing performances. Audiences are drawn into an exceptional level of engagement because they must consciously choose whether or not to suspend disbelief and go along with each new story. This process of "going along," I argue, is a matter of reciprocal, mimetic performance that manifests physiologically for both actors and their audiences. I shall argue that the option of choice posited by *Talk Show* manifests as an aesthetic experience facilitating embodied awareness of cognitive and

perceptual processing. In this, I will draw support from theories of mimesis as they are implicated by the shifting neuroscientific discourse around mirror neurons.

I will turn shortly to the implications of mirror neuron theory, but first I wish to lay some theoretical groundwork in a discussion of mimesis as it pertains to Fast's artistic oeuvre, and *Talk Show* in particular. I adopt a definition of mimesis from cognitive scientist Merlin Donald, who suggests that, "a mimetic act is basically a motor performance that reflects the perceived structure of the world, and its motoric aspect makes its content a public, that is, a potentially cultural, expression" ([5], p. 283). Donald formulates mimesis as a performance that entangles nonlinguistic embodied actions with collective cultural knowledges. For Donald, mimesis is distinct from imitation or mimicry specifically because it is intentionally communicative, taking audiences into account ([5], p. 286). Mimesis is not a linear process whereby a message is sent and passively received; it is a collaborative dynamic in which participants actively engage in mutual exchange. Furthermore, in mimetic exchange the participants do not simply duplicate one another's actions, but each performance manifests as an original, unique iteration. Mimesis is useful to neuroaesthetic inquiry because, in the context of art, it formulates audiences as active agents engaged in communicative exchange, while at the same time affirming that mimetic acts are also inventive acts.

Talk Show explicitly stages the actors' mimetic performances as acts of invention. Art historian E. H. Gombrich discusses the inventive dimension of mimesis, describing a child at play who uses an upturned table for a spaceship and a basin for a crash helmet: "The basin does not represent a crash helmet, it *is* a kind of improvised helmet, and it might even prove useful" ([11], p. 99). One doesn't assume that Gombrich's child is deluded—he or she knows that the helmet is still a basin—and the human nervous system seems perfectly capable of allowing the real basin and the fictional helmet to comfortably co-exist. Fast's *Talk Show* brings this kind of tolerance for fact/fiction paradox to the fore, but in this case the situation is far from comfortable. There is little at stake in pretending that a basin is a helmet, whereas in the case of *Talk Show*, the actors are pretending to be a specific person—a person in intimate proximity, performing alongside the actors. Because the content of Ramaci's story is so loaded, the actors' failed attempts to duplicate it create emotional tension, even as this process generates compelling new stories.

In many of Fast's works, he addresses the originality of the copy as a central theme, deploying loaded, political content as a catalyst for charged fact/fiction ambiguities. Fast locates the material presence of copies in the temporal experiences of his actors and audiences. Working with collectively charged content such as remote drone warfare, the Holocaust, and a suicide bombing in Israel, he stages performative re-enactments of first hand accounts of traumatic events. Rather than making critical comment on media tropes, Fast states that he wants his work to have an "emotional or perceptual" effect ([13], p. 77). Through *Talk Show*'s improvisations, embodied aesthetics emerge as audiences are invited to empathize with the actors' affective behaviours *as actors*. While the actors attempt to imitate Ramaci and one another, the cognitive address of a developing, shifting narrative inflects and intensifies the affective qualities of the performance. At the same time, non-narrative, embodied knowledges emerge.

Perez is the first actor to re-tell Ramaci's story. As she speaks, halting occasionally, sometimes letting her words flow, the tension oscillates dramatically. As she struggles for words, it becomes clear that part of her apparent distress is a means of buying time while she reconstructs a narrative. And yet, for two reasons, her reconstruction does not feel false. Firstly, the emotions that she now tries to evoke are some of the emotions that the audience has just experienced through Ramaci. Secondly, Perez is an excellent actor. As Ramaci previously commanded audience attention with her gestural presence, now Perez captures the gaze as she attempts to embody key aspects of what has suddenly become her story. The emotional nuance does not lessen in intensity, but in Perez's version it is weighted differently. While Ramaci celebrated her own sense of pride and dignity, Perez inhabits the anger, jealously and guilt evoked by the story. While Ramaci was calm, Perez is fierce; moving around a lot, waving her hands, raising and lowering her voice with inflection. It is as if she is fully portraying certain emotions that Ramaci was trying hard to suppress. Perez is creating a fiction, but her body language, tone of voice and facial expressions manifest that fiction as a very present, sensorial reality.

Later in the sequence, when comedian Dave Hill takes on the narrative, he radically shifts the tone from sincerity to humour, gratuitously throwing anachronistic details into the plot. His glib approach borders on offensive as he seems more interested in getting laughs than in staying true to the story. The moment is telling as it becomes apparent that an ethical code of conduct has been emerging all along. None of the actors have stayed true to Ramaci's story, but by at least appearing to try to faithfully internalize and replicate what they have heard, they have shown Ramaci a form of respect. As Hill makes fun of the story, he comes across as rude, creating an atmosphere of panic as more elements of Ramaci's version slip away. When Lili Taylor retells Hill's version, however, she rejects his comedic mode and, in doing so, she delivers the most affectively convincing performance of the entire piece. She faces "host" David Margulies with a clear-eyed expression of emotional pain. Head in one hand, she speaks candidly, "I don't know anymore. I don't know anything. I know that I loved this woman, and she's gone. It's like an MIA and I don't have any closure…"—her voice becomes husky, and the rims of her eyes redden in a seeming effort to hold back tears—"…no resolve. And I'm…"—she pauses, shaking her head slightly, and heaves a pained sigh, looks at Margulies with stark vulnerability, sighs again—"… so I'm just trying to figure it out." Taylor's words are ambiguous. She could easily be speaking about the predicament she, herself, is really in; trying to tell a believable story about which she knows almost nothing. In her raw, emotional performance, fact and fiction completely collapse into one another.

The audience rides an affective roller coaster, oscillating between the mimetic dualities of embodied truth and performative fiction that call the notion of original into question. Many of the actors' performances, for example, were delivered with more affective emphasis than Ramaci's version, generating emotional intensities that felt genuine even when the words did not. Furthermore, how rehearsed was Ramaci's seemingly "original" performance? How many times had she told her story and how much narrative spin had she put on it? Just as fictional mimetic performances are also inventions, so Ramaci's non-fictional performance manifests as a constructed interpretation of past events.

Talk Show is obviously an embodied experience for the actors, but how do the aesthetics emerge physiologically for the audience? I propose that the actors' affective performances compel reciprocal, mimetic engagement. Gibbs explains that facial expressions, for example, can be especially contagious between subjects.

> Of particular interest is facial expression's activation of mimetic impulse in response to the facial expression of observers, tending then to elicit the same affect in them. It is very difficult not to respond to a spontaneous smile with a spontaneous smile of one's own, and one's own smile provides sufficient feedback to our own bodies to activate the physiological and neurological aspects of joy ([9], p. 191).

Taylor's facial expressions of distress, confusion and pain; Ramaci's full-bodied expression of controlled calm; Perez's look of intent concentration, may all induce similar emotional states for members of the audience.

The concept of mimesis as a reciprocal, physiological resonance is supported by the neuroscientific discovery of mirror neurons. Mirror neurons are small groups of brain cells that fire the same way when a subject performs an action as when the subject observes another performing the action. They were discovered by neuroscientist Giacomo Rizzolatti and his team when they were recording the synapses in a monkey's brain while it performed a simple grasping action ([19], p. 69). Inserting electrodes into the animal's brain, the scientists observed neuronal activity when the monkey picked up a piece of food. During the experiment, one of the humans happened to pick up the food while the monkey was watching. To everyone's surprise, the monkey's neurons fired in exactly the same way as they had when it was grasping the food itself ([8], pp. 168–169). Working in collaboration with an fMRI (functional Magnetic Resonance Imaging) lab, Rizzolatti and his team concluded that humans also have a mirror neuron system ([18], pp. 54–61). The discovery of mirror neurons affirms a physiological dimension to inter-subjective communication. Furthermore, the process happens automatically. As cognitive scientist Alvin Goldman suggests, "Mirroring activity is an involuntary response to perceptual stimuli" ([10], p. 168). Mirror neuron theory suggests that *Talk Show* audiences must, to some degree, experience the actors' actions in their own bodies. Does this mean that audiences are simply passive subjects, whose nervous systems are mechanistically triggered by artwork?

Early work on mirror neurons was delivered with strong claims situating nonconscious activity in the motor neural nets as the driving force underlying human communication and empathy. In a 2004 research paper, mirror neuron scientists Giacomo Rizzolatti and Laila Craighero made the following assertion.

> Mirror neurons represent the neural basis of a mechanism that creates a direct link between the sender of a message and its receiver. Thanks to this mechanism, actions done by other individuals become messages that are understood by an observer without any cognitive mediation. ([19], p. 138)

For some, neuroscience seems to hold out the promise of unmediated communication as a kind of Holy Grail, an empirical proof of nature over nurture that would release Western culture from the seemingly miasmic cultural relativism of postmodern theory. If senders could reach receivers without passing through cognition then, by extension, the contingent conditions of culture and history would not need to be taken into account as factors in the construction of collective knowledge.

In 2007, art historian David Freedberg and neuroscientist Vittorio Gallese teamed up to apply mirror neuron theory to aesthetic experience, making similar claims. In suggesting that mirror neuron activation provides an "embodied simulation" of another's experience, they explicitly argue against the "primacy of cognition in responses to art" ([7], pp. 197–198). Freedberg and Gallese situate their theory in opposition to the "new art history of the 1970s" which, in their words, insisted on "purely historical, cultural and social factors in responses to art" ([7], p. 199). Framing a polemic between biological and cultural response, they propose that viewers grasp the meaning of artworks "precognitively," ([7], p. 201) responding physiologically to the poses represented in figurative works (such as Michelangelo's *Atlas*) or to the movements indexed in gestural abstractions (like Jackson Pollock's *Lavender Mist*).

Mimesis has surfaced in neuroaesthetic discourse, in part because the discovery of mirror neurons casts it as a mechanical nonconscious process supporting deterministic, bottom-up models of mind. I will return to the literature on mirror neurons shortly, but first I want to explicitly address the neuroaesthetic problem of privileging the nonconscious. Art historian John Onians is a neuroaesthetic scholar who positions the physiology of neuroscience in opposition to the supposedly non-physiological realm of culture, suggesting that "more habitual terms [than 'brain'], such as 'mind' and 'intelligence,' with their lofty, even godlike, associations, distort our view of the people to whom they are credited … by over emphasizing the active character of their relation to the world" ([16], p. 14). As Onians embraces the brain, he implicitly reinforces a nature/culture dichotomy, asserting that human behaviour is driven by nonconscious, and therefore natural, impulses.

The experimental practice of neuroscience is traditionally based on a bottom-up model of the brain, in which it is assumed that small components of brain anatomy—localized networks of neurons assigned with particular tasks—transfer signals upward through the complex system, from the nonconscious zones of perception low in the network toward the higher cognitive areas where conscious thought occurs. In bottom-up models, nonconscious processes are spatio-temporally situated early in the chain and therefore they are understood to drive and determine conscious thought and behaviour. Neuroscientist Benjamin Libet famously questions the existence of free will in his essay "Unconscious Cerebral Initiative and the Role of Conscious Will in Voluntary Action" ([14], pp. 529–566). Cultural theorist Brian Massumi takes up Libet in 2002, suggesting that "… what we think of as 'free,' 'higher' functions, such as volition are apparently being performed by autonomic, bodily reactions occurring in the brain but outside consciousness…" ([15], p. 29). Thus, conscious agency comes into question under bottom-up models of the brain in which autonomic processes happen prior to conscious processes. The theory relies on a spatio-temporal model in which it is possible to be in a precognitive state. In the following pages I will challenge this linear formulation, suggesting that it only inheres under the staged conditions of laboratory experiment where specific processes of perception are intentionally triggered in passive subjects and observed in isolation from other concurrent neural processes. In everyday experience, by contrast, neural processes are ever ongoing throughout the entire matrix of the brain and they do not have temporally discrete beginnings.

Recent research in cognitive neuroscience strives to produce empirical models of mind that can account for the workings of the brain as an embodied organ in ongoing interaction with the environment. Jerry Fodor, for example, worries about the limitations of anatomical neuroscience to account for the infinite variability of inputs that constitute consciousness ([6], p. 39), while the collaborative duo of Nancey Murphy and Warren S. Brown emphasize the non-hierarchical structure of the brain as a dynamic system in ongoing feedback with the world [2]. These formulations of mind—rejecting considerations of the brain in isolation—lack for experimental models because the myriad variables of life experience that give rise to consciousness are difficult, if not impossible, to quantify and replicate in a lab. In the context of art experience, however, such limiting conditions do not apply. Specifically, *Talk Show*'s audiences respond to the work as fully embodied organisms, their affective, mimetic engagements informed by the cultural and historic knowledges specific to their individual lived experiences. While the artwork does not by any means operate as a science experiment, it can provide material instantiations of embodied mind as a social, integrated system.

In arguing for the role of culture as implicated in physiological response, my goal is not to privilege conscious thought over nonconscious neural activations, but to position the two as mutually entangled. I disagree with Gombrich, for example, whose mimetic paradigm privileges making over matching. On one hand, he rightly argues that it is fallacious to presume that an artist could ever produce a direct, unmediated representation of his or her sense impressions. As soon as pencil touches paper, decisions must be made about what to depict and how. Invention, for Gombrich, always precedes imitation. On the other hand, like Freedberg and Gallese, Gombrich is here positing a temporal hierarchy. In order to assert that one mode precedes another, the measurement of time has to begin at some determined moment. Imagine the artist sitting down to draw. The paper is blank, and common sense might dictate that the art making begins with the first mark. But the artist is not blank, nor empty. He or she is a digesting, respirating, remembering, cogitating, culturally embedded, temporally situated, living, breathing person who comes to the blank paper with a nervous system that is processing the content of his or her world on an ongoing basis. As Murphy and Brown have argued, the nervous system operates as an impossibly complex and continuous network of feedback loops between the individual and the environment. In their neurological exploration of agency they explain,

> The picture we are prone to have in mind is an organism whose 'default position' is inactivity. When it acts, the question arises as to what caused it to act and whether the action was 'up to it' or not 'up to it' […] A more accurate picture is of an organism that is constantly active (to some degree or another). Thus, the question is not what initiated any part of the behavior, but rather, what the factors are that modify ongoing behaviour. ([2], p. 275)

Drawing from Murphy and Brown, I question the concept of precognitive states, construing system as an ongoing, mutually inflected entanglement of conscious and non-conscious processes. A viewer who comes to an artwork is never a *tabula rasa*, but always an active, agential participant whose cumulated history of lived experiences inflects and informs their perceptions in the present. Likewise, an artist who

comes to create an artwork is already actively engaged in imitative and inventive relation to the world before the physical act of art making begins. In this formulation, making cannot be said to temporally precede matching because oscillating mimetic processes of matching and making are always and ever ongoing. My argument with Gombrich is not that I would privilege matching over making, but that privileging either masks the entangled relations of the two. *Talk Show* makes an important contribution to this discussion because it explicitly refuses to privilege invention over imitation and *vice versa*; rather, the piece makes transparent the very circular entwinement of these co-constitutive mimetic dimensions.

I have criticized Gombrich for implying a temporal hierarchy of invention over imitation but at the same time I also want to affirm the relevance of his deep skepticism about biological determinism for contemporary art historians—specifically John Onians and Barbara Maria Stafford—who conduct neuroaesthetic inquiries. While Gombrich eventually opts to privilege making over matching, his larger aim is to blur the philosophical boundaries that Plato drew between the two ([11], p. 98). In this—as in other sections of *Art and Illusion*—Gombrich formulates perception as an active and relational process. Onians, by contrast, relies on the normative authority of the neuroscience of perception without taking into account the contingent, disciplinary conditions within which neuroscientific knowledge is negotiated. Onians activates neuro-biology as a corrective to postmodern relativity and, in doing so, he reifies the brain as a deterministic alternative to cultural contingency. Onians complains about a humanist "uncertainty" ([16], p. 160) in Gombrich, his former teacher, but Gombrich's reluctance to ascribe science with absolute authority reveals an understanding about the negotiated nature of scientific knowledge. Neither art nor neuroscience can provide comprehensive answers to the other's questions—each discipline operates under such different epistemological constraints that findings from one cannot simply be translated to the other. By showing respect for the differences between art history and science, Gombrich establishes an unfixed and provisional space between them, a dialectic in which synthesis is forestalled in favour of heterogeneous potential. In this way, Gombrich's work foreshadows contemporary neuroaesthetic debates and his epistemological approach is born out in his refusal to deterministically reduce human experience to either nature or culture.

> The dignity of man [*sic*] … lies precisely in his Protean capacity for change. We are not simple slot machines which begin to tick when coins are dropped into us, for … we have what psychoanalysts call an "ego" which tests reality and shapes the impulses from the id. And so we can remain in control while we half-surrender to counterfeit coins, to symbols and substitutes. Our twin nature, poised between animality and rationality, finds expression in the twin world of symbolism with its willing suspension of disbelief ([11], pp. 102–103).

Gombrich casts mimesis as a process that collapses the distinction between a representation and its referent because the mimetic imitation is always also an invention. A mark on a paper or a physical gesture can be both symbol and material at the same time. In this way, "The world of man [*sic*]," says Gombrich, "is not only a world of things, it is a world of symbols where the distinction between reality and

make-believe is itself unreal" ([11], p. 99). By taking on science without ascribing it absolute authority, Gombrich is able to make deeper insights into embodied perception than Onians, who appropriates neuroscientific findings as a means of validating art historical claims.

Art historian Barbara Maria Stafford also studies neuroaesthetics, but, in contrast to Onians, she retains an allegiance to the entanglement of conscious and nonconscious processing in aesthetic perception. Writing about the connection between mimesis and mirror neurons, Stafford suggests that mimesis has returned to its "rightful aesthetic significance after a long post-structuralist hiatus" ([22], pp. 75–76). She also challenges neuroaesthetic researchers to consider conscious agential acts as integral aspects of art experience.

> Not coincidentally, the deliberate reproduction of persons, actions and situations is also one of the historical tasks of art. In the early modern sense, this type of second creation 'connoted the work of the human hand in imitating nature.' What rendered art artful or ingenious—science scientific and generative—was precisely the material and the epistemological difficulty of reshaping what the eye sees. The venerable problem of mimesis—that is, the fabrication of faithful representations—can be restated as just this tension between first-person experience or individual witnessing and coming to know another through a double process of internalization: by intuitive copying and willed repetition ([22], p. 76).

For Stafford, the mimetic oscillation is not just between imitation and invention, but also between conscious and nonconscious performances of simulation. Like Rizzolatti and Freedberg and Gallese, she celebrates that postmodernism's logocentric hold on art analysis has loosened to the extent that the material affects of artworks can once again be seriously considered. Unlike the early mirror neuron theorists, however, Stafford is wary of neuroaesthetic theories that privilege nonconscious processes of perception in the art experience. It is particularly important to her that neuroaesthetic scholars begin to value volitional attention alongside automatic neural processes, because contemporary, Western, technological environment tends toward the mechanization of intelligence and the fragmentation of subjects into component parts. A particular function of art, she argues, is to "snap us to attention," making us aware of our sense perceptions and also aware of ourselves as agents as we direct our attention to the task of combining diverse elements into meaningful synthesis ([22], p. 207).

Talk Show speaks to a state of heightened awareness by making manifest the dualities of mimetic performance without allowing narrative closure. The piece does not resolve into linguistic legibility, but remains a paradoxical experience in which the audience is asked to actively participate in conscious acknowledgement of their own nervous systems as they engage with the material. Mimetic processes that might normally happen nonconsciously, such as empathic responses to facial expressions, come into cognitive consciousness because they will not settle as either real effects or fictitious representations. In this way, the aesthetics of *Talk Show* facilitate an embodied awareness in audiences of their own cognitive processes as they engage in reciprocal mimetic performance. Fast deploys mimesis to reveal that copies are always also inventions, and, further, that embodied communication is always also somewhat imitative.

Returning to the neuroscience of mirror neurons, does it support or detract from the argument that conscious and nonconscious processes entangle in mimetic communication? Up until recently, the rhetoric around mirror neurons as involuntary, nonconscious causal mechanisms would seem to preclude discussion of conscious involvement. As Donald mused skeptically in 2005,

> Mirror neuron circuits are found in large numbers in species, such as monkeys, that are very poor at imitation and gesture. It follows that the mere presence of a mirror neuron system in the brain is not sufficient for the emergence of mimetic skills or even of imitation. Mirror neuron systems, taken alone, lack some of the key cognitive components required for high-level mimetic action ([5], p. 289).

Donald suggests that the causal claims for mirror neurons have been overblown. The rhetoric has been changing, however, and in the next few pages I shall trace shifts in mirror neuron discourse as it moves away from strident assertions that mirror neurons have a deterministic, causal role in communication, toward formulations that position them as co-constitutive agents in embodied, meaning-making networks.

In 2007, philosopher Emma Borg queried the strong causal claims made for mirror neurons in her essay in *Journal of Conscious Studies* titled, "If mirror neurons are the answer what was the question?" Doubting that mirror neurons provide any understanding of the intentions implicated by others' actions, Borg suggests, "I want to be able to work out that you grasped the cup because you were thirsty, not merely that you grasped the cup because you intended to grasp the cup" ([1], p. 8).[2] In this, Borg raised a flag that deterministic accounts of the role of mirror neurons were bordering on behaviourism.

The following year, philosopher of science Corrado Sinigaglia published a response to Borg, arguing that she had failed to understand the full range of implications suggested by mirror neuron research.

> Far from constituting a 'lure of behaviorism', which cognitive science should resist, MNs [mirror neurons] would enable us to go beyond the dichotomy of behaviour- and mind-reading, avoiding both the over-simplification of relegating action understanding to a mere identification of motor sequences and the abstraction of reducing action understanding to pure mentalizing. ([21], p. 73)

Sinigaglia's clarification is welcome, as he insists that mirror neuron theory can problematize mind/body duality rather than privilege body over mind. Given the extent to which mirror neuron scientists had previously been spinning the story as one in which they had discovered empirical evidence of a linear, causal relationship between nonconscious processing and inter-subjective communication, the conversation between Borg and Sinigaglia makes a vital contribution to the discourse.

In recent years, mirror neuron research has become less polemic and more interdisciplinary. Michael Arbib, a computational cognitive neuroscientist who has

[2] Barbara Maria Stafford made a similar complaint about the limitations of mirror neuron theory, when she suggests that the real problem is that of 'determining the very nature of intention itself—not just its where and when. In affective ingestion we do no just repeat another's actions, we grapple with them' ([22], p. 89). See also [12].

worked on mirror neurons with Rizzolatti, explains that computational neuroscience models the brain as if it were a computer, looking at isolated systems, such as mirror neurons, in order to compile a network from component parts. Cognitive neuroscience, on the other hand, focuses on more global questions such as "how do we know the world?" [3]. Combining cognitive and computational neuroscience, Arbib works to understand neural micro-systems not as the primary agents of consciousness, but as integrated elements of larger complex systems. In a paper he co-authored with Erhan Oztop and Mitsuo Kawato, Arbib suggests that far too little is understood about the myriad neural networks at play in acts of communication to justify causal claims for the role of mirror neurons in acts of communication [17].

In an apparent response to Arbib, Rizzolatti teamed up with Sinigaglia[3] to set the record straight. "Of course, claiming that mirror neurons are critical for understanding the motor acts done by others does not imply that these neurons magically bear such an understanding *per se*; rather, this means that their output triggers a complex network of neurons, some of which are involved in the execution of those motor acts" ([20], p. 66). While Rizzolatti originally asserted that mirror neurons provided material evidence of precognitive, unmediated communication, he now construes them as co-constitutive elements in a multi-dimensional system. Significantly, Rizzolatti and Sinigaglia suggest that what "mirror mechanisms tell us is that the self and the other are so strictly intertwined that, even at the most basic level, self- and other-attribution processes are mutually related to each other, being both intimately rooted in a common motor ground" ([20], p. 69). Thus, while mirror neurons were originally cast as the instigators in a linear chain of neural events, they are now situated as participating elements in a vastly complex network of interrelated and ongoing neural processes of dynamic, social and subjective interaction. This paradigm shift is significant for neuroaesthetics, as mirror neuron scientists make it clear that the isolation and observation of nonconscious neural processes in the lab does not mean that those processes *in themselves* are sufficient to determine human behaviour and experience.

Returning to *Talk Show*, then, mirror neuron theory affirms the embodied reciprocity in mimetic performance, as the actor's gestures automatically trigger neural responses for audiences. Furthermore, as Rizzolatti and Sinigaglia claim, these responses, or "internal action representations" can be considered as "actions in their own right" ([20], p. 69). While mirror neurons usually activate offline—inhibited in the motor system so that observers don't automatically perform the actions they see in others—the neural activity nevertheless registers in the body as a form of action. Thus *Talk Show* draws audiences into embodied complicity as they may, to some degree, be physiologically performing narrative fictions along with the actors. And yet, while mirror neurons fire automatically, it does not follow that the

[3] At the time of writing, an essay co-authored by Corrado Sinigaglia and Vittorio Gallese, "How the Body (in Action) shapes the Self," is pending publication in the Journal of Consciousness Studies. I am delighted to see that mirror neuron scientists Rizzolatti and Gallese are extending the scope of their inquiry by working across disciplines with a philosopher of science, and I think Sinigaglia brings a great deal of valuable insight to the discourse.

audiences for *Talk Show* are therefore passive subjects whose aesthetic experiences are driven by purely nonconscious processes. *Talk Show* differs from other filmic narratives in that it repeatedly reinforces the constructed nature of the narrative. Thus, while audiences' mirror neurons are being triggered, they are simultaneously making conscious choices about how much they want to go along with the actors' stories. As cognitive neuroscientists and simulation theorists Jean Decety and Julie Grèzes explain "The automatic level and the conscious level are not independent from each other; rather they represent different aspects of a common process" ([4], p. 5). Stafford also elaborates,

> Mimesis recognizes the contagious effects of mimicry, and the fact that empathy begins with reciprocal seeing and involuntary duplicating of another person's behavior. But it also requires emotional control, the executive decision to resist drowning in another person's pain so as to formulate an appropriate course of action. ([22], p. 211)

Talk Show does not ask audiences to feel as if they have fully become the actors they observe. Instead, Fast's video makes the process of engaging with fiction transparent, and further raises the suggestion that performative invention may be integral to most forms of storytelling, even, as in the case of Ramaci's version of events, when the story is ostensibly true.

Lewis-Kraus suggests that, "Fast offers that his films be taken in terms of the aesthetic bliss they provide. Subject matter is only interesting insofar as it is a hurdle into this aesthetic appreciation of the film as an aesthetic object" ([13], p. 45). *Talk Show*, however, demands that in order to access the work as "aesthetic bliss," the audience must become consciously complicit by embodying the fictions that the actors convey. This aesthetic process may occur at several levels of simulation, including the nonconscious response of the mirror neuron system and the conscious choice to imagine feeling what the actors seem to feel. As critic Gideon Lewis-Krauss suggests, the content catalyzes the aesthetic process. In *Talk Show*, content remains in the foreground throughout. Ramaci's story is charged with collective Western anxieties about war, murder, infidelity, gender discrimination, abandonment, loss and resignation. Without such affectively loaded content the piece would make a weaker call on audiences to become mimetically involved. In daily life, people form embodied engagements through mimetic performance all the time, without necessarily being conscious of the process. *Talk Show* provides an excellent research site for inquiry into embodied mind, because it brings the human capacity for mimetic communication into awareness, holding it in suspension so that its aesthetic dimensions can be explored.

Because the tendency persists in neuroscience to polemicize conscious and nonconscious processes, it is important to emphasize that just because an embodied form of knowledge might be non-linguistic, that does not mean it is nonconscious. Gibbs explains, "by 'communication' … I do not mean the transmission of information, but, rather, action on bodies (or, more accurately, on aspects of bodies)—as, for example, when reading fiction produces new affect states in us, which change not only our body chemistry, but also—and as a result—our attitudes and ideas as we shape from narrative a structure of meaning" ([9], p. 194). Indeed, one of the operations that art performs particularly well is to bring into conscious awareness

nonlinguistic, embodied forms of knowledge that might otherwise go unnoticed. While nonconscious processes of perception are always in play in mimetic exchange, *Talk Show* brings them to the fore.

By insisting that Omer Fast's *Talk Show* can be considered, on its own terms, as a valid research site for neuroaesthetic inquiry, I have endeavoured in this essay to show how the artwork supports various theories of embodied mind. In doing so, I have drawn from neuroscientific literature, but always in a context of informed respect for the discipline's internal modes of critical discourse. If neuroaesthetics is to evolve as a truly interdisciplinary investigation, the epistemological standpoints of art theorists and our methodologies must be given credence along with those of neuroscientists. I hope that my research shows how materialistic propositions about mind as a physiological process do not have to be reductive nor deterministic. The subjective address of conceptual artworks can reveal the brain as a truly fabulous biological organ—embodied, socially active and thoroughly engaged with the world.

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