

The Neurophenomenological Particulars of Interactive Art Installation as they may be interpreted through Merleau-Ponty

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The Argument

The aesthetic language emerging from the domain of interactive art installation reflects and uses the patterns found in the neurobiological construction of consciousness. The patterns of life that serve as the foundation of the phenomenological field are also found within structural patterns of the mind. Contemporary artists intuit these internal patterns and develop artworks with interactive elements that fit into them and call upon the viewer's patterns of cognition, in part by engaging the viewer in some kind of physical action.

Essential Claims

In the practice of contemporary interactive art, many artists are not mimicking, simulating, or copying reality (which for centuries was considered the main purpose of art itself). Instead, they are making works *of* reality. This is an important phenomenological distinction as we begin to connect the anatomical structures of cognition in the brain to understanding the impact of interactive art – on both the artist's and the

participant's experience.

Phenomenological discourse defines the "body mind" not as Descartes' mind-body distinction, but rather as mind that is *part of the body*. Furthermore, phenomenology recognizes that the body has "intelligence" that resides in its very form. In this discourse, the "body mind" is distinguished from "the body senses," which are defined for this purpose as both the phenomenological experiences of embodiment as well as the biological entities and processes that both house and pattern the lived experiences. The body mind and the body senses are of the same reality, and resonate with each other as elements of the natural universe, where, according to phenomenological discourse, the organic (as well as the inorganic) has some degree of consciousness. Therefore, the body or mind is not a model of the other, but rather an instance that lies within a universal pluralistic pattern. As science discovers evidence of the neurological structuring of the "self", artists have noticed the import of these patterns and have applied them to their artwork. Artists are processing this knowledge intuitively and sending those same patterns back into the world. Interactive artists are also intuiting and materializing neurological patterns in their art. This process of evidenced material reality in a most literal way, brings art to science and science to art.

The Mind and Body Fields

Both the field of the body mind and the field of the body senses are real. Scientists claim that over 99 percent of

the universe is in the “plasma state,” with the earth and her life forms at even a higher density. With this foundation, we can move away from the dualism of living/not living forms and move towards an understanding of all matter within the life spectrum as defined by their density of becoming. This sensitivity to all life and their energy fields shows to us the relevance of earth-life being whole and its elements as universal. Each element in living systems has energy, and they are very sensitive to tiny energy fields and resonance phenomena, both locally and from a distance. This allows, as example, the cells of a body to work together instantaneously and symphonically. Through the phenomenological work of Edmund Husserl, we may intuit that language and mathematics are other common grounds for consciousness and matter. From the patterning of communication to the process of each cell, we see this patterning not just in people, but in every mass of plasma, within every field, and with every conscious thought that emerges from these systems.

For a scientist, all biological processes are a function of electromagnetic (EM) field interactions. EM fields are the connecting link between the world of form and resonant patterns. EM fields embody or store gestalts – patterns of information. The task for the brain is to gather knowledge about the essential, permanent, and constant properties of objects and situations; yet because the energy of every element of life is constantly changing, the information reaching the brain is never the same from moment to moment, and everything we know is in a continual state of flux.

Husserl’s manuscript, *The Phenomenology of Internal Time, - Consciousness as the Primal Impression*, describes a self-consciousness that acknowledges the impression and retention of interactive experience. In Maurice Merleau-Ponty’s phenomenology, we do not look specifically at the details of interactivity, but rather to the totality of the philosophical experience within this interactive flux. In order to understand the phenomenological approach, a distinction must be made between phenomenology and science. From the perspective of phenomenology, the body is not reducible to the sum of its elements or an assemblage of its gestural particulars. Science, however, can be reductive. Some disciplines of science can be understood as the identification and assessment of individual elements and processes in order to understand a larger system. Phenomenology takes the logical investigations of science and “return[s] them to the things themselves” [1]. Regarding scientific evidence, Husserl argues that things may be shown “as themselves in the original” [2]. Phenomenology can be identified as the thinking back or reflection on scientific evidence, or what Emmanuel Levinas calls a “truth”, specifically an “on-tonic model of truth that remains faithful to the reflecting philosopher” [3]. When the philosopher considers the material basis of consciousness to be a system of the entire or total (physical, biological, chemical, social, economic, mental, linguistic, etc.), this system cannot be determined or explained by its component parts alone. Instead, the system as a whole determines in an important way *how* the parts behave, and this in itself is an action of interactivity.

This idea is similar to that of Ontological Holism, which is a concept developed by the contemporary physicist David Bohm as part of his theory on The Implicate Order. In his book, *Wholeness and the Implicate Order*, Bohm proposed a cosmological order radically different from generally accepted conventions, he describes this holistic order of "general totality", as follows:

In the enfolded [or implicate] order, space and time are no longer the dominant factors determining the relationships of dependence or independence of different elements. Rather, an entirely different sort of basic connection of elements is possible, from which our ordinary notions of space and time, along with those of separately existent material particles, are abstracted as forms derived from the deeper order. These ordinary notions in fact appear in what is called the 'explicate' or 'unfolded' order, which is a special and distinguished form contained within the general totality of all the implicate orders.[4]

Spatial Consciousness

Both Bohm and Husserl agree that consciousness has a base in both memory and matter. Bohm states that consciousness is both stable in the past and enfolding within each present moment. He writes:

One may indeed say that our memory is a special case of the process described above, for all that is recorded is held enfolded within the brain cells and these are part of matter in general. The recurrence and stability of our own

memory as a relatively independent sub-totality is thus brought about as part of the very same process that sustains the recurrence and stability in the manifest order of matter in general. It follows, then, that the explicate and manifest order of consciousness is not ultimately distinct from that of matter in general.[5]

In neurobiology, all "ideas" (consciousness) are brain constructs, but not all brain constructs are ideas. Neuroscientist V.A.F. Lamme claims, "Visual stimuli, or attributes of visual stimuli, that activate cortical neurons do not necessarily reach consciousness. Separate neural definitions of visual consciousness and visual attention is a case for phenomenal awareness"[6]. Lamme's claim supports the idea that consciousness is a constantly emerging process with different interdependent stages.

In systems neuroscience, consciousness is examined with regard to how the circuits are formed and used anatomically and physiologically to produce such physiological functions as reflexes, sensory integration, motor coordination, circadian rhythms, emotional responses, learning and memory, and more. Neuroscientists study how neural circuits function and the mechanisms through which neurological behaviors are generated. Cognitive neuroscience addresses the ways in which psychological/cognitive functions are produced by the neural circuitry. The neurobiologist, working in a subfield of neuroscience, studies the neurons that literally process phenomena before those phenomena become

elements of consciousness. Called the *feedforward sweep* in neurobiology, the brain creates knowledge of all experience *before* it is parsed to the neurons that handle consciousness. In neurophilosophy, this would be identified as the non-thetic or non-posting sequence of the experience.

Lamme, Husserl, and Bohm all discuss a kind of fold in space – a pointer to reconsider the prescribed linearity of time. In particular, Lamme's work shows us that at the cell level there is a predisposition to a materialization that predicts. Consciousness is not linear, and in these folds we see moments where consciousness is not sequential. This holism of material unifies the senses with the intelligible. Therefore, we can agree that the body does not have essential claim to thought, but rather, has an empirical connection.

In phenomenology, the feed forward state of consciousness is called the “pre-objective”. An example of this can be observed when people have seizure activity in a localized portion of the brain. Magnetic Resonance Imaging technology can take a digital picture of the internal electrical disturbance, but the seizure action may only manifest externally as a bodily response later – as much time as a week can pass between a seizure in the brain and the body's response. The seizure of the brain can, therefore, be understood as a detachable action from the re-action of the body as it occurs in time. This suggests that there is an unconscious “awareness”, an internal intelligence that occurs before the body manifests the seizure experience in conscious awareness.

What both scientists and phenomenologists claim is that a kind of recurrent interactivity is essential for phenomenological experience to arise. The word “consciousness” itself means a recurrent processing in the brain is occurring. It is a universal human desire for interactivity that is rhythmic in structure, and emerges perhaps from an underlying biological substrate. Consider the pleasure experience found in the act of repetition. For the neurobiologist, this biochemical neural process and phenomenon of mental experience is a repetitive chemical exchange between the body of a cell and its neighboring cells. Knowledge of how neuro-networks express memory is necessary to our understanding of interactivity at the full body level. The recursive processes of math in complexity theory, the self-organizing systems of natural forms in fractal geometry, and the musical cadence of a hummingbird are all corroborating evidence for our desire to engage in dynamic and recursive systems. The repetition of recursive systems is an identifying attribute of an interactive reflexive event.

Biological entities use the reflexivity of consciousness that go to describe acts of self-awareness. Evidence of this reflexivity is found in the circular relationship of bi-directional feedback loops, and exist within the embodied consciousness of this reflection. As Merleau-Ponty states, this evidence is provided as a psychological reflection which turns away from the thing in order to look back upon the state of consciousness through which things are given to us as flesh consciousness. Flesh is elemental to both the fields of neurobiology and phenomenology. Its

place in the discussion is midway between the spatial-temporal and mind as idea. The phenomenological field treats the study of the internal biology of the brain as part of the larger body of flesh and, therefore, part of an eco-phenomenological field of flesh. As understood in phenomenology, cells are individual objects in relation to a network of cells. Man is an object in relation to other objects. The body of flesh is a gateway for the sensory experience. Moving inwards from the body of flesh, we find the housing for the substrates of consciousness. Moving outward from it, we experience the object of the body as being in the phenomenological field. As viewed at all resolutions through a phenomenological lens, all parts of the body of flesh are fluid, provide activation, and are part of the field of experience.

With the inclusion of neurobiology as an interior ontology within the larger discipline of phenomenology, we are provided with two new understandings:

1) As the physical brain renders consciousness, the formation of sensorial opportunities are evidenced in the body and are therefore included within the phenomenological field. The essence of consciousness, as Merleau-Ponty understands it, emerges within the world that is already there before reflection begins. Identification of patterns found in the body is evidenced in contemporary artistic practice through the artistic use of emergent behaviors and networking systems. Within this interactive moment, the embodied mind is complementary to the action and the intent, which consciousness regulates.

2) Contemporary artists use this rhythm of interactivity in an intuitive way, employing the same interactive expressiveness that the substrates of the body use to build consciousness. This generative rhythm is both internal and external. It is found in both the physical elements of the body that experiences art as well as the intentions of the artist, as well as our interactivity that alters it.

Autonomy is a critical aspect of interactivity. The body is an organism in the larger system, and artists use this orientation which is inherent within their own selves, to render aesthetic choices. Interactive art starts with the connectivity of minds and machines to build the artwork, using the same laws that exist in biological bodies. Through the demands of self-immersion, the artwork invites human interaction, thereby structuring the consciousness of the experience of the artwork.

Interactivity refers to the artwork's interactive allure, as experienced by the human participant. This is different from other aspects of the artwork such as its visual appearance, its internal working, and the meaning of the signs it might mediate. Interactivity, according to Baudrillard in *The System of Objects*, is "the relation between the object and its function" [8]. Interactivity is intuition in motion and in context and Phenomenology reminds us that the conscious mind is acted out through the senses.

In experiencing interactive art, the contemporary viewer acts as an active participant in a contingent relationship with a dynamic object. The body is positioned as "navigator" within the

interactive art moment, which offers a unique arrangement in the phenomenological field – where all objects are both conditional and autonomous. The construction of the new interactive aesthetic relies on the kinesthetic leverage of this engagement.

Converging Disciplines

The late 20th century brought scientific thinking to philosophy and aesthetics. Raymond Ruyer developed a theory on the consciousness of all living matter and in which the “mind” is understood as a fundamental feature of the universe. Ruyer was able to separate consciousness from the exclusivity of psychoanalysis, a critical step in creating a science of conciseness. Roger Caillois expounds that the phenomenon of mimicry has a function in nature, which may be explained in terms of an instinct for survival – and this instinct includes human activities such as the production of aesthetics, once thought of as the highest form of evolution. In contrast to earlier thinking, Caillois places aesthetics on equal footing with basic survival needs, which suggests an unprecedented accessibility to the experience of art. Lucien Cuénot provides scientific evidence that the principles of natural selection established by Gregor Mendel apply not only to plants but to animals as well, challenging the long-standing ideology that humans hold a higher position relative to other living matter. This resonates well with Merleau-Ponty’s “self as an object of equality” within the larger relationship of varied living entities. Cuénot scientifically proves that all living matter is made of the same elements, which works to support both Ruyer’s “autonomous mind” and Caillois’ argument that the autonomous

mind emerges directly from nature’s patterns. Merleau-Ponty straddles this historical moment. The mind is about to be freed from the hierarchal authority of a controlled analytical experience, and dropped into a laterally-constructed, self-generating reality where the wild terrain of matter itself is rationalized as consciousness.

It is important to remember that there is a distinction between scientific truths and philosophical truths, and that neither need rely upon the other for validity. We can surmise, then, that an absolute resolution between mind and body may never be possible, especially when science and philosophy maintain mutually exclusive claims to truth. However, efforts made by interdisciplinary factions serve well the rethinking of the overlap of distinct disciplines. Certainly we have each experienced the benefit of cross-disciplinary moments in our own lives, where fresh perspectives and outcomes are infused into our established systems of thought. Perhaps we could trace these experiences as procedural evidence of a particular shift in our larger understanding of consciousness.

One example is the term “chronotrope”, which in science, refers to the change of heart rate, and in literature is used to refer to the relationships of time and space within literary narratives. Mikhail Bakhtin's new system of positioning words has forever altered the reading of literature as a matter of time and space. So, we can now understand chronotrope to be both a cognitive concept derived from science and a narrative feature of language. Using a similar rationale, the

term “neurophenomenology” is the re-assignment of the scientific neurological concepts and sensorial features of the body. In connecting the functioning of mind within the framework of traditional phenomenology, we expose additional complexity to the perception of embodiment.

The Anti-Cognists are a relatively new collection of cross-disciplinary scientists that include members from neurology, biology, cognitive science, psychology, and physics. This international group of varied practitioners is involved with scientific studies that identify the action of cognition, or specifically, the physical structures by which consciousness emerges. Their research has provided important advances in the understanding of the spatio-temporal relationships of consciousness. However, their work has remained focused on the machinery of the brain, and has not extended into the nature of the mind and its relationship within a larger physical world. It is easy to imagine that together, the study of anti-cognist theories of consciousness along with a phenomenological relationship to the sensorial experience would provide a broader, and perhaps more holistic understanding of the embodied mind.

Merleau-Ponty was committed to a mindful embrace of the body during a time when neuropsychology was being pioneered in France, and neurobiology in the United States. As phenomenology helped us to place ourselves in the larger context of the world, neuropsychology was also focusing on consciousness and experience. Though the overlap was evident, the disciplines did not begin to

converge until more recent scientific research supported the lack of a “fixed self” or “absolute consciousness” in biology. Neurobiology began to understand the mind not as a fixed object, but rather one of interactivity and constant development within the larger phenomenological experience in time and space.

Validated Reality

A new term used by interactive artists, “validated reality”, describes the experience of an art interface that uses reactive mechanical technology with the body. The body of the viewer/participant is the place of the primary interaction rather than the object itself. This is an important distinction in the interactive field of new media. The roots of validated reality in interactive art can be dated back to approximately 1957, when Marcel Duchamp described the artist as medium, and talked about the viewer interacting with the artwork to bring about meaning. The 1960s saw innumerable events and actions involving some degree of interaction between art and the viewer/participant, but the interest in art and technology, cybernetics, and systems theory had even a greater impact. The term “interactive art” was introduced into the canon of Western art in 1989, in the German art journal *Kunstforum*, and was used thereafter at the Festival Ars Electronica in Linz Austria. By the assimilation of digital technologies into the global society, the notions of viewer to object had essentially dissolved, contributing to the recession of a dualistic understanding of mind and body.

In contemporary disciplines, the potential for interactivity is created through the action of one living body against another. The dynamic affect created within the body when interactivity occurs is that of a living, breathing, and thinking organism interacting within its own nature and the nature of those objects that perception can identify and gesture can engage. The embodiment of reason is an action through which the body's sensory motor system translates "mind" to the outer field, and how the field is reshaped back into consciousness.

People's subjective, felt experiences of their bodies in action provide part of the fundamental grounding for language and thought. Cognition is what occurs when the body engages the physical, cultural world and must be studied in terms of the dynamical interactions between people and the environment. Human language and thought emerge from reoccurring patterns of embodied activity that constrain ongoing intelligent behavior. We must not assume cognition to be purely internal, symbolic, computational, and disembodied, but seek out the gross and detailed ways that language and thought are inextricably shaped by embodied action.[9]

The following describes three body-operated artworks that exemplify interactivity from a neurophenomenological understanding. These works dissolve the art as object and rely on the interactivity of the viewer/participant in order to render aesthetic experiences that are seeded by physical participation, and are emergent in their anti-representational renderings.

They are both interactive and psychoactive, and erode the boundary between hardware and wetware.

Three Interactive Art Installations

Daniel Rozin's interactive artwork, *Peg Mirror*, is comprised of 650 wooden pieces. Casting shadows by rotation in unison, these pegs form concentric circles around a small camera that reconstructs an image of the viewer/participant in the state of mediated reflection. The robotic wooden pieces act not unlike biophotons – light stored in the cells of all sighted organisms. Standing in a dynamic web of light, the participant in Rozin's interactive artwork, experiences it simultaneously as a body and a subjective awareness. The artwork is thus a representation of the primordial openness to the "life world" (what Merleau-Ponty describes as the "Lebenswelt").

The act of engaging with contemporary art often involves more than the aesthetics of visual acuity. It involves multiple senses, conceptual adaptations, issues of time and space, and dynamic interactivity. The brain produces what neurobiologists call "qualia" (the raw feel of experience) of conscious awareness, whereby both the sensorial level and the neuronal level work in symphony to render experience. The senses radiate and absorb experience from both within the body and within the greater biosphere of which the body is part.



Interactive Artwork by Daniel Rozin, *Peg Mirror* (2007)

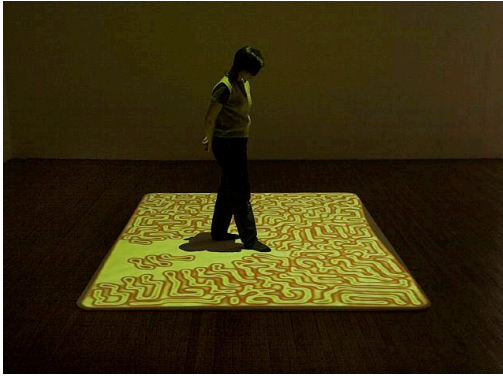
(Copyright Daniel Rozin, 2007.)

“Through a small machine, viewers see themselves as an aggregate of wooden wheels, a disorientating sensation that may encourage musing on the nature of the life within them.” (George Fifield, Act/React Curator)

Merleau-Ponty reminds us that, “consciousness admits to no separation of appearance and reality”[10]. Rozin brings the old form of the Lacanian mirror into a contemporary understanding of ourselves, in which our body is an object that needs to be “determinate in relation to rest and movement”[11]. The more general fragments of Lacan’s formation of the “I” theory are specific to a technology-specific mirror surfaced with analog pixels. The cognitive sciences are linked to technology - in that technology acts like an amplifier. It picks up particulars that are smaller than we can see, but nonetheless have the same properties as all relational matter. Rosen exposes both the external reality of a robotic

relationship to the body, as well as the internal logic of the intelligent body. In the movement of interactivity, the viewer/participant intuits their own neurons’ axonal firing explosions, dendritic synchronies, gap junctions, and even finer-scale activities that all function together to make the lived experience.

The Healing Series by Brian Knep is another example of interactive art installation that brings together both internal and external experience through the body. The installation is made up of three separate but similar interactive floor pieces. They are dynamic, and change in response to participation. When a piece encounters a foreign body, such as a gallery visitor, the pattern on it pulls away, creating a wound. When the foreign body leaves, the pattern heals itself and the wound closes, but each piece heals itself, always in a different way. In *Healing #1* the sides of the wound never actually touch. Brian Knep describes the interactivity as a “scar” forming “a memory of the interaction between the visitor and the mat. Over time the scar may be obliterated, but its effect on the pattern’s growth is permanent. The pattern looks the same qualitatively, but it never looks exactly the same as it did before the interaction”[12].



Artwork of Brian Knep, *Healing #1* (2003-04)

(Copyright, Brian Knep, 2004.)

The Healing Series provides a view into the invisible neurobiological functioning behind the interaction between body and form or, what Merleau-Ponty describes as “a lived time experience and the natural biological bases [that] are linked by mutual constraints provided by their respective descriptions”[13]. It is biology and experience as one, in a pre-reflective contact of self with self, which neurobiologists describe as the “non-thetic consciousness”. In this art, the environment itself responds to the viewer/participant, who in turn, navigates the surrounding space from his or her unconscious space. In Edmund Husserl’s research on time consciousness, the body is placed first in a pre-conscious instinctive stance. Merleau-Ponty describes the interaction as a moment where object meets object: “What makes part of the self count as an object in motion and another as a background is the way in which we establish our relations with them”[14]. Space between objects and discrete environments are not as clear as they may appear. Merleau-Ponty would tell us that experience makes them overlap.

Knep’s Healing Series installations reflect and engage neurological patterns. The scientific theory of Dynamical Systems describes the notion of attraction within cellular structures. Through a system of chemical exchanges, cells communicate with each other in a way that is both self-organizing and that creates a system that is greater (more complex) than its parts. Knep’s *Healing #1* uses artificial intelligence software to allow the phenomenological experience of the intelligent body to guide the viewer/participant through the computer graphics and algorithms that both define the boundaries of the individual structures as well as monitor the larger pattern. The viewer/participant’s interruption of this system alters both the patterns on the floor as well as the scar that is defined within them.

Scott Snibbe’s *Deep Walls* installation creates collective patterns from the lived experiences of the viewer/participants. The installation system collects, archives, and re-distributes these experiences through a non-linear narrative format. Viewer/participants are invited to connect with the larger form of this mathematical transformation through their interactive gestures. Functionality, as stated by Baudrillard in *The System of Objects*, is “the relation between the object and its function”[15].

Neurobiologists’ main areas of study are really concerns with relationships between levels of organization and states – from cells to networks, or from electronics to mechanics, or from unconscious to consciousness. There is no intimate ground and no absolute state.

The body is a moving target, and this lack of fixedness is also true to the mind – to being aware as a self, and to the phenomenological relationships of body as object, to other objects, and to networks of interconnected objects.

Marvin Minsky, in his book, *Society of the Mind*, reminds us of the collective state of experience. He states, “What I see is not mine in the sense of a private world. Negative space is filled with the other Visible/Invisible” [16]. Minsky goes on to argue that the mind is a *process* that carries our brains from one state to another. As a structure, its principal activity is to represent the physical world; we make self-modifications, and, in this way, “the brain functions for its own purpose, not for the purpose of representation” [16]. So, another way to consider Minsky’s claim is to position the self in the existential moment, where singular experience becomes the negative space or the absence of self and part of the whole in a dynamic reality. Merleau-Ponty refers to this state as Negation – an active state where the individual becomes folded into the body of the whole interactive field through the moment of experience.



Artwork by Scott Snibbe, *Deep Walls* (2003)

(Copyright, Scott Snibbe, 2003.)

In the interactive artwork, the interaction is founded on instinctive responses following a universal understanding that the viewer/participants “must display both autonomy and awareness of the other” [18] (Judith Donlith, Media Theorist)

A time-based model of interactivity is both instinctive and universal. In the Contingency View of brain interactivity, scientists describe an interactive state as occurring when a message is related to a number of previous messages and to the relationship between them. According to Husserl, interactivity refers to flows of consciousness – an internal time, which affects the duration of experience and where the motion is actively present. Together this creates Husserl's “absolute of consciousness”.

In communication theory, interactivity is similar to the degree of responsiveness, and is examined as a process in which each message is related to the previous messages exchanged, and

to the relation of those messages to the messages preceding them. New Media Interactivity takes place in the context of communication between a human and an artwork; interactivity refers to the artwork's interactive behavior as experienced by the human user. This is different from other aspects of the artwork, such as its visual appearance, its internal working, and the meaning of the signs it might mediate. An artwork's interactivity is best perceived through use. A bystander can imagine what it would be like to use an artifact by watching others use it, but it is only through actual use that its interactivity is fully experienced and "felt". This is due to the kinesthetic nature of the interactive experience. Snibbe reminds us that the "body is the seat or rather the actuality of the phenomena of expression" [19]. The body is the fabric into which expressions are woven; it is a general instrument of comprehension that occurs through interactivity. The body is the subject of interactivity – working directly with the understanding of our own consciousness responding to the art installation in the phenomenological field.

Snibbe employs a particular usage of the term "gaze" that both celebrates and controls. The gaze in and of itself is interaction; rules such as the play of sensorial interactions and the displacement of identity govern the gaze. Interactive artworks expand the boundaries of what we consider to be autonomously engendered interaction. How we interpret the gaze depends upon our model of the mind and our understanding of the intention that is produced by the artist's mind. Within a power struggle between the gazer and

the object, we can understand the gaze to be a structurally communal bond. At the interactive site there is a crossing of paths with the viewer/participant's predecessor that is both autonomous and collective. Snibbe's installation is an example of this complex and context-dependent gaze, and acts as a social catalyst. The artwork and viewer/participant interact both within and about time and space. The envelope of the experience includes the entrance and exit to the space of the gaze -- the attract, sustain and release of the interactive moment.

The ubiquitous connection of the meeting/greeting in Snibbe's interactive art is intermittent and compressed, refigured time. Attention is focused on the interactive rhythms of the nature of the exchange. Distinct from time and space in everyday interaction, the time and space difference in the installation nevertheless heightens our awareness of the everyday.

The Knowing Interaction

Immanuel Kant proposed that we can never obtain knowledge about the thing-in-itself independently of our experience of it, which includes a thought process. He supposed that the ingredients of knowledge were provided by the sensory input, and read into thought processes of the brain that are governed by the two innate intuitions of time and space. In his "Refutation of Idealism," Kant states, "Inner perception is impossible without outer perception of the world and that they are connected phenomena"[20].

It is interesting to introduce here ambiguity, which constitutes another way of leaving a work unfinished, or open to time. In a neurological sense, not in the dictionary sense of vagueness and uncertainty, a work of art is "unfinished" enough to offer several solutions, all of equal validity, so that there is no right answer to the puzzle offered by the interactivity nor is there a necessary completion to the action of the viewer/participant. Merleau-Ponty acknowledges that perception is an incipient science: "Parts collapsing before our eyes. The natural object was the first to disappear; the object is but a 'bio-chemical blending of pure concepts'" [21]. The interaction of oneself is always an internal struggle, and the "psychological reflection once begun, then outruns itself through its own momentum...the phenomenal field becomes a transcendental field"[21]. In Merleau-Ponty's external field, the senses experience and engage within the field. New categories for translating phenomena include extensions of self, thought signs, meaning, and motivation. Merleau-Ponty had concerns about slipping into an intellectual discourse of scientific analysis of action that would not hold onto the wholeness of the experience; however, he does agree that a certain amount of particulars must be examined in order to see a larger scope of the field.

In neurobiological systems, interactive proofs are a set of messages sent "on the fly" to make sure the true signal is correct – a sort of parallel checking system. Merleau-Ponty would describe this process as part of the true wholeness

of sensorial perception, and part of the "intelligent synthesis" of consciousness. It is the transitional synthesis that brings about a passage from one sense to the other in both science and phenomenology.

The neurological proofing system is a pre-verbal and pre-thetic state which is strongly bonded to the natural, biological and protosocial ordering of the body. It is the neurobiological part of the pre-thetic dimension of phenomenology and its corporeal schema, perhaps a way to describe the physical pathway of the pre-positing of consciousness. In other words, it is experience that occurs before a sensorial equivalent. It is here that Merleau-Ponty's phenomenology of perception shifts from Edmund Husserl's on a direct examination of the experience. Merleau-Ponty's understanding of the phenomenological reduction shows that his critical idea was not to restrict the scope of Husserl's reductions, but to study the conditions of possibility for the thetic acts. Merleau-Ponty argues that thetic acts rest on the basis of primordial pre-thetic experience, and not on a linearity of time and space. This layer of experience cannot, by its nature, be explicated or clarified, but it can be questioned, unveiled through experience.

Conclusion

"The presence and structure of interactivity is likely the greatest issue that contemporary art will address in this century"[23] (George Fifiield, New Media Curator)

Experience, in Merleau-Ponty's perspective, uses the objects of the world to discuss the spatial contingency of everything to everything. The experience is both a bodily action and a sign, and heads towards the meaning of something but never actually arrives. Experience unfolds as a non-linear and emergent agent of the temporal-spatial reality. It rises up within the nature of interactivity and is an agent of one's physical exploration. Knowing is therefore dependent on the fluid gesture of seeking for the connections of the physical and a conscious moment.

Neurobiology is part of our corporeal schema that gives every moment a global, practical, and implicit notion of the relation between our bodies and objects. Neurons, senses, and emergent systems of cognition are all embedded agents of body and impose its neuro-interactions on perception. Using feedback loops through the eco-phenomenological experience of interactivity, consciousness creates a contingency view to the senses through the stasis, reaction, and interaction of dynamic forms. Neuro-forms work towards consciousness in the same phenomenological state of becoming as that of the outer flesh. Merleau-Ponty acknowledges, "we must recognize an interior to 'sense-giving acts' of the theoretical and positing of thought, expressive experiences; as anterior of the sign's significance"[24].

Interactive art assists in the posting of consciousness from a pre-thetic experience to one that is self-reflective and self-conscious. The act constitutes an interface between its referential

objective functionality and the subjective act of bodily engagement. As Merleau-Ponty would agree, the truth is in the action and not the description of the moment, as a "universal contiguity [of] consciousness [that lay] in myself or the psychologists' 'cogito', which remains incommunicable within the experience of life"[25]. The particulars of the field remain the signifiers to an experience that is always becoming but never arriving. Interactive art makes evident this position of potentiality. In this way, the aesthetics of interactive art installation is an embodied realism, in contrast to one of representation. These artists reject the notion that mind and body are two ontologically distinct kinds of knowing, and therefore, reject the attendant view that cognition and language are based on symbolic representations inside the mind of an organism. Instead, the terms "body" and "mind" are simply convenient shorthand ways of identifying aspects of ongoing organism and environment interactions.

As we synergistically make ourselves more assessable to the electronic sensorial field, the interactions become more personal and familiar. Meaning emerges from this interactivity of whole body acting within the signifier of the technological coding which we can understand as mimicking between the internal and the external particulars of flesh. Space becomes the new nature – it is a seminal, intuitive sense of space where being emerges from both the act of engagement and the desire for experience. Science defines the field as a world of pluralities, each with only partial and limited power. Merleau-Ponty sees the interaction with these pluralities as the advent of being into

consciousness. Together they describe the action, a sort of control flow of becoming. Using this example, it is plausible that this neuro-phenomenological model of consciousness is a universal system of understanding that may include both the particular components and the gestural intuition of knowing.

Connectivity as a form of seeking universality has always been an essential part of philosophy. But contemporary cultural shifts have exemplified the comingling of disciplines at a rate that suggests that the formation of our reality is shifting from one of passive observation to active participation, or from a representational to a construction model. In contemporary society, we are left to negotiate both the content and the context of our world. Interactive art installation is embedded within this reality as a new form of a universal pattern and our ongoing desire for interactivity. Interactive repetition, which emerges from an underlying biological substrate, is one that has always been with us and one that we consistently move within in the act of our own invention.

Notes

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[4] David Bohm, Wholeness and the Implicate Order. Routledge 1980) 208

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[13] Merleau-Ponty, Maurice. Phenomenology of Perception: An Introduction (Routledge, 2002) 262

[14] Ibid, 324

[15] Jean Baudrillard, The System of Objects (Verso, 1996)

[16] Marvin Minsky, Society of Mind (Simon and Schuster, 1985) 137

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[25] Ibid, 340

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