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## **On Empathy: The Mirror Neuron System and Art Education**

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### **Abstract**

This paper re/considers empathy and its implications for learning in the art classroom, particularly in light of relevant neuroscientific investigations of the mirror neuron system recently discovered in the human brain. These investigations reinterpret the meaning of perception, resonance, and connection, and point to the fundamental importance of the resonant body in understanding the world of objects (including objects of art and material culture), and the world of others (including an intersubjectivity of interdependence). Presenting research results and classroom experiences, this paper ultimately advocates a move toward an art education of empathy that integrates caring, cognitive growth, and sociocultural awareness. This art education would strive to promote a connectedness in the classroom community--an authentic and resonant kind of harmony--between self, object, and other, through which the worlds of objects and others are experienced and made meaningful.

## Introduction

Empathy, at root, allows the self to identify with the other and individuals to connect with groups. Facilitating holistic learning in the classroom and beyond, empathy is a vital resource that offers the promise of intersubjective understanding so essential to the survival of the human community. Throughout the 20th Century, all manner of psychologists, philosophers, and educators were called to study the implications of empathy's promise, and hopefully, many will carry on this mission in the 21<sup>st</sup> Century.

Currently, neuroscientists around the world share an acute interest in empathy, kindled by the recent and still stunning discovery of mirror neurons in the human brain (Rizzolatti & Craighero, 2004). With this discovery, the neurological basis of empathy has been laid bare (Carr, Iacoboni, Dubeau, Mazziotta, & Lenzi, 2003). Subsequent investigations of this "very strange class of neurons" (Gallese, 2006) have yielded new insights, prompting some in the neuroscientific community to characterize empathy as a "biological drive" (Iacoboni, 2007) to "understand the world of *objects*, [including objects of art and material culture], as well as the world of others" (Gallese, 2006; emphasis added). Aided by state-of-the-art brain imaging technologies, these investigations are lending substantial, even foundational support to the earlier insights offered by scholars in fields such as philosophy and education (Gallese, 2006; Iacoboni, 2008).

In light of these developments, empathy requires systematic reexamination, particularly on the part of art educators concerned with global imagery and its power to influence personal identity and cultural awareness. New inquiries may reveal, among other things, the character of empathy at the nexus of nature and culture, where the bedrock importance of the body is affirmed. For now, this paper re/considers empathy, beginning with a brief history of the term, and argues for a broadened understanding of its neurological underpinnings and their implications for art education. It also attempts to envision an art education of empathy that would embrace new understandings of perception, resonance, and connection, and encompass cognition and emotion in the biocultural worlds of objects and others. Each world is described below in sections presenting relevant neuroscientific research and issues related fundamentally to learning in the art classroom.

## Bases of Empathy

As it turns out, the English word, empathy, is derived from *Einfühlung*, ("in-feeling," or "feeling into"), a German term coined by the philosopher, Robert Vischer, in 1873. At the time, *Einfühlung* was used in the lively debate concerning the polemics of idealist and formalist properties of art in Vischer's native Germany (Gallese, 2006). Though it invoked a kind of "aesthetic sympathy" or "psychological aesthetics," *Einfühlung* was intended to

describe the projection of human feeling into art objects (Freedberg & Gallese, 2007). As Vischer himself described this phenomenon: “I transpose myself into the inner being of an object and explore its formal character from within, as it were” (as cited in Gallese, 2006). From within the strokes, gestures, and depicted content of the work, Vischer was to experience a physical intimacy, a kind of carnal connection to the object of art.

For some twenty-five years, *Einfühlung* remained the province of philosophy, until Theodor Lipps expanded the term’s meaning to include visual illusions, and then, removed it from the aesthetic debate altogether by repositioning it within the domain of psychology. Though Lipps, the philosopher said to have been most admired by Freud, began with an interest in the relationship between a work of art and its viewer, he later focused on relationships between human beings and the psychological processes he believed could explain how one person might discover the self of another (Jahoda, 2005). With this interest in intersubjectivity, Lipps extended Vischer’s notion of transposition, reasoning that if human feeling could be projected into objects, then it could also be projected into human beings. More specifically, he focused on “inner imitation,” the process by which one individual found his/her own emotions stirring when observing the emotional gestures of another (Jahoda, 2005). In his 1903 treatise on inner imitation, Lipps offered evidence drawn from his experience of acrobatic performances on the high wire. When witnessing these adrenalin-pumping performances, Lipps claimed that “we feel ourselves inside the acrobat” (as cited in Iacoboni, 2008, p. 109).

Lipps used inner imitation, which in his view was essentially similar to the long-established notion of “sympathy,” (“feeling with”), to redefine *Einfühlung*. However, Edward Titchener, a professor of psychology at Cornell University who established its psychology laboratory and a theory of mental structures, did not share this view. In the early 1900s, he translated *Einfühlung* into English, creating the word “empathy” that would distinguish it from “sympathy” forever more (Jahoda, 2005). With the discovery of mirror neurons less than a century later, however, this battle over terms seems irrelevant, if not quaint. Regardless of the labels applied, mirror neurons can be understood as the basic units of Titchener’s empathy—its mental structures, as it were. At the same time, the remarkable mirroring mechanism of these cells presents an empirical explanation of Lipps’ experience of inner imitation.

Connected historically, as well as biologically to empathy, then, mirror neurons deserve closer attention at this point in the discussion. They are typically described for lay audiences in terms of their functional properties, for example by the neuroscientist, Marco Iacoboni (2008), as those cells in the human brain that “seem specialized in understanding our existential condition and our involvement with others” (p. 267). Located in area F5 (premotor cortex), these cells are specialized specifically in “coding” for hand actions, including grasping and gesturing (Iacoboni, 2008), and are activated both when such actions are executed by one

human being and *observed* by another. As Iacoboni (2007) explains: “when I see you grasping something, the *same* cells in my brain are activated, so it’s almost like I’m in your mind” (emphasis added).

Also found in area F5 and concerned with motor behaviors of the hand are the canonical neurons and possibly, the “super mirror neurons” (Iacoboni, 2008). Unlike their mirroring neighbors, canonical neurons fire at the very sight of a graspable object, invoking in the brain the “motor plans” necessary to grasp that object (Iacoboni, 2008). Super mirror neurons, according to Iacoboni’s (2008) hypothesis, suggest a “functional neuronal layer ‘on top’ of the classical mirror neurons” that controls their activity, increasing or decreasing their firing rates (p. 203). Important in action observation, ostensibly, super mirror neurons play a role in differentiating self and other, for example, by preventing one’s own hand from grasping while observing the grasping action of another (Iacoboni, 2008). A functional system, the mirror, canonical, and hypothetical super mirror neurons challenge traditional notions about perception. As the neuroscientist, Vittorio Gallese (2006) points out: “we don’t just perceive with the visual system, we perceive also with the motor system.” Indeed, action and perception are not separate, but inextricably linked in area F5 of the brain (Iacoboni, 2008).

The pattern of activity in the mirror neuron system allows human beings to experience their own actions and those of others at an abstract level of representation; that is, through an “embodied simulation” (Freedberg & Gallese, 2007; Gallese, 2006). Such a motor simulation, according to Gallese (2006), “allows our body to resonate along with the bodies of others.” Laying the neurological foundation for empathy, these simulations are critically important in enabling people to share their experiences and understand the hand- and object-related actions that characterize the world of objects. Including objects of art and material culture, as well as the hand tools used in studio classrooms, this world is resonant in art education.

### **The World of Objects**

The question of how people understand objects—the things of material life—has been pursued by philosophers and neuroscientists alike. Vischer, and later, Merleau-Ponty, for example, understood objects by experiencing them intimately. For Merleau-Ponty (1964), though, connections to things were forged in and made resonant by the body. In his words: “Things have an internal equivalent in me. They arouse in me a carnal formula of their presence” (p. 164). Neuroscientific evidence now supports the existentialist notion that things are understood corporally. Objects induce embodied simulations that represent the acts of selecting, holding, or manipulating them long associated with human experience and cultural expression. The grasping actions and “motor plans” necessary to apprehend such objects are, according to Iacoboni (2008), “inherently linked” to our very understanding of them (p. 14).

Through embodied simulation, moreover, this existential understanding is shared person to person.

As it turns out, neuroscientific research indicates that mirror neurons fire not only when executing and observing object-related hand actions, but also when anticipating that such actions will occur (Grafton, Fadiga, Arbib, & Rizzolatti, 1997; Johnson-Frey, Maloof, Newman-Noulund, Farrer, Inati, & Grafton, 2003). Reporting on these experiments, Gallese (2006) notes that mirror neurons fire

when we observe a hand disappearing behind an occluding screen where we know an object, a bottle is hidden, and we *imagine* the hand doing something with the object. Even when we see a *static* hand positioned in a goal-related fashion, or an *image* of the hand about to grasp the bottle, this activates these neurons.

More surprising, perhaps, are findings demonstrating that simply listening to a sentence that describes an action also induces a motor simulation of that action (Glenberg & Kaschak, 2002; Zwaan & Taylor, 2006).

Research involving the canonical neurons indicates that neither the hand, nor its image is required to induce a motor simulation in the observer; images of a hammer and screwdriver are sufficient (Grafton et al., 1997). Participants recognized the “representational content” and “intentional interactions” of such tools, and thus, mentally reconstructed the ways in which they are to be grasped, manipulated, and used (Freedberg & Gallese, 2007, p. 4). Though the paintbrush, palette knife, and computer mouse were not included in this study, it is reasonable to assume that such tools would also activate the canonical neurons, inducing a motor simulation, particularly within the artistic community, as they clearly specify “intentional interactions,” as well as imagined artistic possibilities. These tools and other graspable objects are not innocuous, but rather, act as potent signifiers that also have biological, cultural, and educational implications.

Canonical neurons are also implicated in research indicating that the observation of a stroke or a letter, “static graphic artifacts”, evokes a motor simulation of the gesture that is required to produce it (Knoblich, Seigerschmidt, Flach, & Prinz, 2002; Longcamp, Tanskanen, & Hari, 2006). Such evidence, according to Freedberg and Gallese (2007), demonstrates that “the brain can reconstruct actions by merely observing the static graphic outcome of an agent’s past action” (p. 6). This reconstructive process is “an embodied simulation mechanism that relies on the activation of the same motor centers required to produce the graphic sign” (Freedberg & Gallese, 2007, p. 6). With respect to the strokes produced by brushes or palette knives, it can be inferred that the “particular gestural traces” of the artist’s hand would also

induce a motor simulation in viewers interacting with works of art (Freedberg & Gallese, 2007, p. 6).

Indeed, Freedberg and Gallese (2007) predict that future studies using art works as “stimuli” will confirm activation of the mirroring mechanism in the motor region (p. 6). Jackson Pollock’s action paintings are obvious candidates, likely to induce motor simulations of the abstract expressionist’s “gestural traces.” Less obvious, perhaps, but no less likely to evoke a motor response is the still life. As Freedberg and Gallese (2007) point out, “a still life can be ‘animated’ by the embodied simulation it evokes in the observer’s brain” (p. 5). Simply put, a “still life is not so still...[it] is really a moving life” (Gallese, 2006). Whereas objects of art may or may not be experienced as emotionally “moving,” they *always* evoke “moving” experiences, neurologically speaking. Moving art in any sense is experienced in and through the resonant body, constituting the kind of aesthetic-empathic experience that, interestingly enough, Vischer first described more than a century ago.

### **The World of Others**

Navigating the world of others requires empathic understanding of the self, as well as of the other, and an ongoing negotiation of the intersubjective relationship between the two. In Western culture, the self-other relationship has been variously characterized, as myriads of philosophers, psychologists, and cognitive neuroscientists were challenged to resolve the perennial problem of intersubjectivity: If a human being (self) has direct access only to the private entity of his/her own mind, then how is it possible to access the mind of another? How can the world be shared meaningfully between minds? What is the possibility of empathy?

In some resolutions, intersubjectivity is conceptualized as a binary relationship, a Platonist or Cartesian self-other duality that, according to the psychologist, Carol Gilligan (1982/93), results in a “conflict” between responsibilities to the self and responsibilities to the other. In another resolution, self and other are envisioned as two sides of the same coin, describing an interdependent relationship between them (Iacoboni, 2008). Dualistic and interdependent proposals are consequential, as each defines the self and other, and the nature of their encounters. Gilligan (1982/93) posits, for example, that when responsibilities to others are accepted, the self is defined in context of the activities that bring it into connection with others. This self measures the worth of these activities against an “ethic of care” (pp. 34-35). Expanding on the ethical and moral dimensions of caring, the educational researcher and philosopher, Nel Noddings (1984) describes this self as one who is prepared to *receive* the other. This kind of self, according to Gilligan (1982/93), tends to locate its being in relation to the world. When, on the other hand, responsibilities to the self are placed above those to others, this self is defined in separation from others. The isolated self assesses its worth

against an “abstract ideal of perfection” involving issues of “character and status” and tends to position the world in relation to the self. (p. 35).

In an interdependent intersubjectivity, self and other are defined existentially, in terms of their concrete encounters, or in Merleau-Ponty’s (1964) experience, their embodied interactions. This lived encounter both shapes and situates self-other in a “we-centered” shared space (Gallese, 2003, p. 174), where their interactions become the “shared existential meaning that connects them deeply “ (Iacoboni, 2008, p. 265). Both Iacoboni and Gallese find solid support for an interdependent intersubjectivity in the research on mirror neurons. As Iacoboni (2008) sees it, “mirror neurons put the self and other back together” (p. 155), creating a “sense of us,” and “some kind of magical connection between people” (Iacoboni, 2007). Gallese (2003) proposes in his “shared manifold hypothesis” that mirror neurons “instantiate a supramodal intentional shared space” allowing human beings “to appreciate, experience, and implicitly and prereflexively understand the emotions and sensations we take others to experience” (p. 177).

Mirror neurons are instrumental in activating intersubjectivity, beginning with the most fundamental self-other relationship that involves the “early interactive capacities of babies displayed and developed in mother-baby and father-baby interactions” (Iacoboni, 2008, p. 155). Such interactions, moreover, are likely to develop the super mirror neurons, which, according to Iacoboni’s (2008) hypothesis, represent a “wonderfully simple neural distinction between self and other” (p. 203). Throughout life, it is the pattern of activity among the mirror neurons and perhaps, the super mirror neurons that allows human beings—the species wired for empathy—to understand the existential meaning of engagement in the world of experience. Specialized for involvement with others, these cells “show that we are not alone, but are biologically wired and evolutionarily designed to be deeply interconnected with one another” (Iacoboni, 2008, p. 267).

To investigate empathy as a “biological drive” in the world of others—to study its role in an interdependent intersubjectivity--is to understand how the human brain simulates the body states, particularly those associated with emotions and sensations. As the cognitive neuroscientist, Antonio Damasio (2006) explains:

If you have the possibility of simulating your own body states, you also have the possibility of simulating the body states of others; you can go from the body of the self to the body of another and through the body, into the mind of another.

Through embodied simulations, then, intersubjectivity is made resonant and comprehensible, and the “actions, emotions, and sensations experienced by others become implicitly

meaningful to us because we can share them with others” (Gallese, 2003, p. 176). Empathy is possible, playing a crucial role in social life and in allowing people “to share emotion, experiences, needs, and goals” (Iacoboni, 2008, p. 109). At the most fundamental level, empathy allows us to understand facial expressions, gestures, intentions, feelings, language, and metaphor.

Evidence of basic empathic understandings comes from those cognitive studies designed to investigate how facial expressions and the feelings they signify evoke responses in the observer. To study the feeling of disgust, for example, Heining, et al. (2003) scanned the brains of participants who observed the faces of actors portraying looks of disgust, happiness, and neutrality. These participants were also scanned while inhaling a disgusting odor. Comparing the two scans, researchers found an activation of a region within the anterior insula, both when participants directly experienced the disgusting smell and observed the look of disgust. The look, as Gallese (2006) concludes, induces a “visceral motor somatosensory-related embodied simulation” of the feeling of disgust.

In other research, Sonny-Borgstrom (2003) and Dinberg (1982) found that participants’ facial muscles were activated in keeping with the emotions they observed on the faces of others. For example, the activity of cheek muscles used for smiling increased among participants when observing happy faces, as did the activity of brow muscles used for frowning when observing angry faces (Dinberg, 1982). These results suggest a kind of “motor mimicry” that, according to Iacoboni (2008), aids perception and non-verbal communication (pp. 110-11). In addition, the Sonny-Borgstrom (2003) study further demonstrated that the degree to which facial muscles were activated correlated positively with the participants’ scores on an empathy inventory questionnaire; that is, the higher the scores, the more muscle activation, and ostensibly, the greater the capacity for empathy. These and other results prompt Gallese (2003) to propose that “sensations and emotions displayed by others can also be ‘empathized,’ and therefore *implicitly* understood, through a mirror matching mechanism” (p. 176).

It seems likely that similar results would be obtained if participants were to observe artistic renderings of the human face. Though unconfirmed by empirical measures as yet, there is compelling, if anecdotal evidence suggesting that the faces of museum visitors resonate along with the facial expressions of exhibited portraits. Indeed, these artforms, or “artifacts,” as Danesi (1993) describes them, are a “means for evoking fundamental feelings and sensations” (p. 77). This appeared to be the case when visitors to the Getty Museum were caught up in an empathic-aesthetic experience of Bill Viola’s video art, *Six Heads* (2000), a key piece in his larger work, *The Passions* (2000-02). On a single screen, visitors found an actor’s face and



were captivated by its gradual, almost imperceptible changes in expression, from joy to sorrow, to anger, fear, awe, and dream-state.

Such facial mimicry, with its perceptual, communicative, and empathic features, invokes an existentialist intersubjectivity summarized by Merleau-Ponty (1964) in a single line: “I live in the facial expression of the other, as I feel him living in mine” (p. 146). Inspiring an “existential neuroscience” (Iacoboni, 2008), Merleau-Ponty’s lived experience and the Husserlian notion, “back to the things themselves,” fit well with the themes explored in mirror neurons research. Interestingly, elements of existential phenomenology and existential neuroscience also fit with Lipps’ (1903) earlier notion of “inner imitation.”

Indeed, results of recent research exploring more complex human interactions appear to further outline the contributions of the mirror neuron system to an existential, if imitative intersubjectivity. In a study of the relationship between training, skill level, and resonance, for example, researchers found that the mirror neurons of professional dancers trained in classical ballet became more excited when observing other dancers performing ballet than when observing dancers performing Capoeira, a Brazilian martial arts dance (Calvo-Merino, et al., 2005). These results suggest that bodies with particular skills and training resonate along with other bodies similarly skilled and trained. Familiarity with the skills and techniques of a particular artform appears, at first glance, to be implicated in the activation of the mirroring mechanism.

However, a closer look reveals that familiarity, as the explanatory factor, has been called into question by a more recent study investigating culturally-specific hand gestures and the mirroring mechanism. Researchers found, as expected, that the mirroring cells of American participants became very excited when observing an American actor performing familiar gestures, such as the “thumbs-up” sign, typically used and understood in American culture (Momar-Szakacs, Wu, Robles, & Iacoboni, 2007). But as Iacoboni (2007) notes, an “interesting,” if unexpected finding was that the American participants’ cells were more excited when observing a Nicaraguan actor performing the unfamiliar gestures found in Nicaraguan culture, than when these participants observed the Nicaraguan actor performing American gestures. To explain, Iacoboni (2007) offers: “It is like they were understanding that there was some kind of harmony between the actor making the gesture and the gesture itself.” Understanding this “harmony,” which likely involves a bodily perception of and resonance with the authenticity and/or integrity of the performances, proved to be more important fundamentally than understanding the meaning of the gestures themselves.

Had the design of the Calvo-Merino, et al. (2005) study of skilled dancers followed that of the Momar-Szakacs, et al. (2007) study of culturally-specific hand gestures, perhaps the results

would suggest that mirror neurons of classically-trained ballet dancers were more likely to resonate when observing Brazilian dancers perform the unfamiliar Capoeira style than when observing the Brazilian dancers perform classical ballet. Indeed, it seems likely that the ballet dancers would perceive and resonate with an authenticity, or in Iacoboni's (2007) words, "understand a kind of harmony" between the Brazilian dancers and their native Capoeira.

Similarly designed studies of the skills and activities performed in the studio classroom might yield similar results. For instance, it seems likely that the mirroring cells of students skilled in painting, say, would be more resonant when observing a painter demonstrating painting techniques than when observing a ceramic artist demonstrating wheel techniques. But it also seems likely that these students' cells would be more activated when watching the ceramicist on the wheel than when watching this clay artist at the familiar easel. Painting students would likely understand a resonant harmony and authenticity between the painter and the painting techniques and between the ceramic artist and the wheel techniques. Although not yet confirmed by scientific means, this kind of perceived and resonant authenticity—Iacoboni's "harmony"—is recognizable, particularly among those in the arts community, and would be important in an empathic art education.

### **Toward an Art Education of Empathy**

Empathy can surely be found in art classrooms around the world, but too often, it is merely a happenstance, the resulting by-product or *incidental* outcome of the learning process. Any movement toward an art education of empathy must begin with a commitment to empathic learning, stated unambiguously as a goal of instruction. In this art education, empathy and Noddings' notion of caring would be conceived of as one sturdy leg in the tripod that, along with cognitive growth and sociocultural awareness, holds up a humanistic education preparing students for active membership in the pluralistic communities of the 21<sup>st</sup> Century. Teachers would value as empathic *and* educative those connections that develop, say, between the kindergarten child and the bright, rapturous colors of his first easel painting, or between a high school student and her classmates with whom she shares the Cezanne still life that so inspires her. Understood in the context of the workings of the mirror neuron system, such connections would be appreciated not only for their resonance and authenticity, but also, for their potency in engendering meaning and integrating the dimensions of the self-in-relation-to-other. Ultimately, they would be consciously promoted for the educational benefits bestowed upon the classroom community and beyond.

Encompassing the worlds of objects and others, this art education digs into neuroscientific research for what is revealed about the strength of the connections between empathic understanding, emotional intelligence, and cognitive growth that are made in and through the resonant body, particularly as this body resonates along with the bodies of other resonant

beings. New and provocative revelations about the close, if surprising connections between action and perception are also seen as important, prompting a reform of theoretical views narrowly focused on the optics of *visual* perception to include a broadened understanding of *perception* as a resonant, even “moving” carnal experience. An art education of empathy searches out studies of the mirror neuron system that can explain how students connect to and are connected by their interactions with objects of art, the artists producing them, and the classmates with whom they share a “we-centered” space. Invigorated by an existential neuroscience and an existential phenomenology, this art education embraces the “implicitly and prereflexively understood connections between people,” and dedicates itself to making such connections explicit and consciously understood.

To be adopted are post-Cartesian or postmodern views that have long since witnessed the collapse of separate cognitive and affective domains, and of the mind-body, perception-conception, and self-other dualisms. The art education to emerge would envision an interdependence among the once dualistic relationships, focusing particularly on an interdependent intersubjectivity around which its philosophy is oriented and in which its classroom practices are grounded. The lived encounters of self-other and self-object, as characterized by their resonance and authenticity, would shape the curriculum and define the classroom community. It is in such a community that Noddings’ (1984) vision of schools [or art classrooms] organized for caring might take hold. The caring school, as Noddings (1984) sees it, involves teachers and students in relationships with one another, rather than in traditional roles to be assumed and played out. In relationship, moreover, the teacher receives the student, and is present to the student, who is always considered to be more important than the subject matter at hand.

An art education woven of caring relationships imagines something beyond the Cartesian self-other duality, recognizing at last that the self defined in isolation, avoiding its responsibilities to the other, has had particularly long-tailed consequences, which according to the artist and critic, Suzi Gablik (1995), reach deep into an art world wrestling with modernist and postmodernist approaches. “Embedded within modernism,” warns Gablik (1995), is a “subtle and far-reaching message concerning the loneliness and isolation of the self” (p. 17), and a “model of the lone genius struggling against society” (pp. 16-17). Gablik’s concern effectively conjure up Gilligan’s (1982/93) vision of the individual denying his/her responsibilities to others and positioning the world in relation to this isolated self. For Gablik (1995), however, there are additional consequences. As she sees it, the model of the lone genius that is the “philosophical basis for Western culture” has also “deprived art of its astonishing potential to build community through *empathic social interaction*” (pp. 16-17, emphasis added). A different, more empathic model would value art, not as a “visual language of form,” but as “something more interactive and dialectical in nature,” involving

“participatory and dialogical practices” that include in the process an interdependence of self and others (Gablik, 1995, pp. 16-17).

Empathic social interaction underpins Gablik’s (1995) advocacy of a “connective aesthetics,” which is “based vigorously in impassioned engagement that would restore art’s connectedness with the world after a century of vision-oriented, purist ideals” (p. 17). This “connective aesthetics,” as informed by dialogical practices, succeeds in reuniting aesthetics and empathy [Einfühlung], but in ways unlike Lipps’ proposal of inner imitation or Vischer’s experience of transposition. Whereas the philosophers focused on the individual, Gablik envisions the communal and a kind of existentialist “sense of us” described by Iacoboni. More importantly, Gablik’s notions of connectedness are supported by the findings of existential neuroscience, and thus, offer a compelling biocultural model for an art education of empathy.

The following passages offer a brief sketch of how this model was applied in an attempted move toward an art education of empathy. Preservice teachers, mostly without background in art, experienced the connectedness of the empathic-aesthetic community described below:

### ***A Resonant Connectedness in the Classroom***

Students in multicultural art education and elementary art methods courses reflected on class presentations one to two weeks after having been given, focusing particularly on those they had found most memorable and vivifying. Presentations featured works of art exhibited in local museums that were unfamiliar to students, but with which they felt a personal connection, nonetheless. In other presentations, students shared a cultural icon deemed to have some personal significance. Presenters explored their connections and shared contextualizing information about the selected pieces, which included, for example: a Japanese Inro box, a Nez Perce umbilical amulet, the *Buddha Shakyamuni*, Tiepolo’s *Triumph of Virtue and Nobility over Ignorance* (1740-50), Cezanne’s *Still Life with Apples* (1893-94), Reni’s *Saint Cecilia* (1606), the iconic logos of Starbuck’s, the Gap, and the Los Angeles Lakers.<sup>1</sup> In their reflections, students sometimes described presenters’ honesty, facial expressions, or emotions, for example, mentioning a face that “showed a fierce, determined look,” or “passion and excitement,” and eyes filled with tears.

Overwhelmingly, students wrote about the connections between classmates and their chosen pieces, both in general and specific terms. Though they did not always remember a presenter’s name or have much in common with that individual, students had clear memories of these connections, their authenticity, impact, and meaning. A small composite of these reflections is offered in the following narrative:

What I liked the most was the way the people connected with the piece they chose... What really stayed with me were the stories and the way my classmates connected with their paintings--how they connected to the art emotionally.... Most [presenters] talked about the cultural significance of the piece and how, through the information they gathered, were able to relate that to something in their own lives... I really enjoyed how [the presenter] felt a strong connection between herself and the girl in the painting ... The connection she made with the sisters and her mom really related to the painting.... I personally felt and understood the connection she felt with the painting... [The presenter] made me feel the same vibration... She brought the painting to life and I was able to feel along with her... She said she wanted to be a part of the art and I understood this.... The way she used the painting metaphorically really made me feel understanding of what she goes through with her mom... Her piece had an impact on me because of the connection she made with it... I felt a connection with her and felt bad for her situation... I felt like crying, too, and I think this [connection] expresses more than words... His words ran deep, and that is where the true resonance of his soul lay... The piece also opened her up to receiving some healing and a connection with the community... We all learned from another's experiences.... I will remember her story for life.

In one elementary art methods class, 12 of 29 students (41.4%), mostly in their mid- to late twenties, found the connection between Karen and her piece to be especially resonant and memorable. Though she was a returning student, a mature woman and single mother of three, these students found Karen's connection to Van Gogh's *The Mulberry Tree* (1889) to be as vivid as it was compelling, evoking in them a strong empathic response to her, *as well as to the artist*. In the painting, the students "saw what she saw"-- "a lonely tree surrounded by wind," that looked "very alive, as well as distorted," with "its wild, chaotic-looking branches going in all directions" -- and they understood that the "craziness" of these branches "gave a visual" to what "Karen was feeling inside." As she described her life in chaos, her "distorted thoughts" and "scattered feelings" brought on by the recent death of one son, the incarceration of another, and the life-long struggle of her Down's Syndrome daughter, the younger students felt what she felt. "The story stuck out to me because I felt the same when I saw the painting." "Listening to her story, and looking at *The Mulberry Tree*, I saw what she felt for a brief moment." "She felt lost and confused, and I understood this."

For these students, there was also a resonance in Van Gogh's story. They internalized the information Karen had shared about his stay at the psychiatric hospital overlooking Saint Remy and believed that *The Mulberry Tree* captured his own chaotic feelings. "Once we knew more about the artist, the piece became even more captivating. Then I knew Van Gogh's

struggles, like hers, were caught in the painting.” Moreover, students understood that Karen, having identified herself with Van Gogh’s story, experienced a modicum of relief because she felt less alone. As she put it: “I’m not the only one who is crazy.” Like Lipps and the acrobat, Karen had felt herself inside Van Gogh’s own precarious position.

In these preservice classes, it is clear that students understood a resonant harmony, or “felt the same vibration,” between the presenters and their chosen pieces. The elegant circuitry of the mirror neuron system made this resonance possible, creating “magical connections” between students as they moved from their own body states into those of the presenters and through those body states, into the mind of the presenter, and in Karen’s case, into the mind of the artist. In an application of existential neuroscience, students implicitly understood an interdependence of self and other, self and artist that animated their experiences within the shared space of their caring community. The act of presenting themselves and their pieces, which brought students into connection with one another, promoted empathy and in their words, a willingness to offer “some healing,” and a “connection with the community.”

Within these connections, art was “brought to life,” animated by more than the motor simulations its gestural strokes and subject matter induced in the students. Through the visual content, the language used to describe it, and participation in dialogue about the piece, there was an empathic stirring of cells and psyche. Literally and figuratively, students experienced a classmate as “the girl in the painting,” or the wind in the chaotic branches scattering the pieces of Karen’s life. Transposing their stories and feelings into objects of art and material culture, they envisioned themselves and their classmates, Vischer-like, as “part of the art.” These intimate experiences went a long way toward restoring “art’s connectedness with the world.” Laced with emotion and fusing lives with resonant objects, students’ stories represented the “impassioned engagement” of a “connective aesthetics.” This connectedness constituted a kind of empathic learning that was profoundly meaningful, moving students beyond intellectual or detached learning to emotional understanding. Explaining the importance of such learning, Danesi (1993) points out: “the juxtaposition of artifact with feeling is a powerful means of making meaning in the world and extracting meaning from it” (p. 77). An art education of empathy promotes such a means.

Empathy is required if we are to share so fragile a planet; if we are to understand the gestures and expressions of others, and the globally-accessible images and icons they produce and consume. A connective force, empathy is to be prized by art education, the field poised to unleash art’s community-building potential and to enable young people to grasp the meaning, the power of connection. An art education of empathy embraces the resonance of mind and body, a resonance running deep into the collective soul. This art education builds human capacities to negotiate the worlds of objects and others with care and empathic insight.

**Note**

1. A more detailed description of students' connections to an Inro box, umbilical amulet, and the Buddha Shakymuni is presented in the article, "Empathy, Cultural Art, and Mirror Neurons: Implications for the Classroom and Beyond," in the *Journal of Cultural Research in Art Education* (2008). Students' connections to paintings by Tiepolo, Cezanne, and Reni and to the iconic logos of the Gap and the Los Angeles Lakers are more fully discussed in "Within Connections: Empathy, Mirror Neurons, and Art Education," published in *Art Education*, March, 2009.

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