

From Perinatal Through Preschool: Empathy in the First Plane of Development

by
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Abstract

The development of empathy in early childhood contributes to moral development, which affects justice and ultimately, society. This research team contends, corroborated by the most current evidence available in this field of study, that we can build up strong communities by cultivating empathy, emotional literacy, and prosocial behavior in early childhood - the period of life in which the brain is most plastic. These assertions are justified by Montessori philosophy. This paper offers a framework supporting the execution and implementation of a robust, community-based program for social interaction that has potential to benefit infants and preschool-age children in the context of Montessori classroom environments.

Keywords: empathy; prosocial development; Montessori; early childhood, young children, infant, preschool-age

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This journey in my professional development was not without significant trials, and my capacity for the resilience to overcome such difficulties is a legacy of my father, Robert Platte. I reflect with pride on the community of friends I have curated, all of whom have contributed to

Empathy in the first plane of development

my achievement of this goal, some in ways they may not yet realize. I am grateful for your loving care.

Introduction

Figure 1

The primary researcher teaches in her Montessori primary classroom with an infant visitor

Source: Aysia Platte

The dyadic relationships that we experience, from our earliest somatic memories between newborn and primary caregiver, leave indelible traces. My entire life has been irrevocably altered by childhood trauma; processing these adverse childhood experiences (ACEs) in adulthood has informed everything I do, including shaping my professional life. I

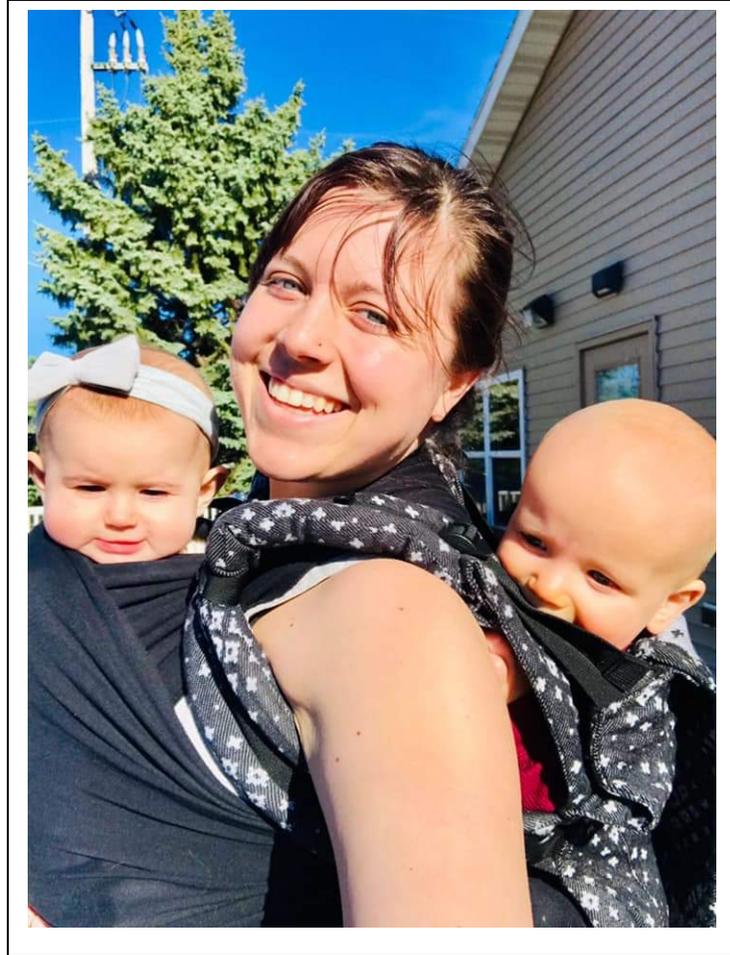


did not benefit from a stable primary caregiver in early life, which naturally has contributed to introspection about how I was able to become a caring individual despite this motherline wound. I learned about the power that other caregivers have to positively impact a child's development of empathy, news that can bring hope to those of us who have been hurt.

Figure 2

The primary researcher tandem carries two infants during the school day

Source: Aysia Platte



Spiritual teacher, Ram Dass often shared this glint of wisdom: “We are all just walking each other home.” This idea, that relationships with others contribute to our experience, has been crucial in my transformational work of healing

from childhood trauma. Co-creation is intricately bound with our construction of self, in the mission of the child in the First Plane of Development and in the transformation of the guide undergoing a continual spiritual preparation. In Montessori's words: "The child developing harmoniously and the adult improving himself at his side make a very exciting and attractive picture" (Montessori, 2007, n.p.)

Instead of being a container for anger, grief, and other heavy emotions that originate from lacking a predictable, responsive primary caregiver in early life, truly understanding that we co-create our experience with others has revealed to me the duality of relationships: as much as

bruised, broken bonds have the capacity to damage us, healthy relationships contribute to healing.

My commitment to the spiritual preparation of the guide allowed me to plunge deep into learning as much as I could about Montessori primary education while pursuing a graduate degree in the Montessori Teacher Education Program at the University of Wisconsin-River Falls, then birth work as a full-spectrum doula supporting birthing parents through all outcomes of the perinatal period, and ultimately bridging the two by training as a parent-infant facilitator with Susan Tracy McDaniel. I have been propelled toward each of these aspects of professional development in the search for answers about how to facilitate healthy attachment between infants and their primary caregiver, wondering about the impact caring, intimate dyadic relationships have on individuals and the consequences for the whole of society.

From the fortunate sequence of these diverse experiences, I realized the need to look holistically and historically at the young child, their origin as the infant, and the adults who nurture their growth through their childhood maturation from prenatal through preschool or, as we will discuss below, the First Plane of Development. I became aware that my varied roles that span the whole of this Plane of Development could contribute to an action research project.

At my previous place of employment, we benefited from a generous maternity care policy for the perinatal period that included midwifery care support, extended parental leave, the ability to enroll one's young infant in the infant program at the school following return from leave, and the ability to nurse on-demand and comfort one's baby during the course of the school day. In a culture where discrimination against parents growing families is routine, with few institutional protections for parental leave or considerations for nurturing secure attachment in

the primary caregiver-infant dyad, it is rare to find a workplace so understanding of the important needs of parents and children.

When one of the guides in our primary classroom environment welcomed her first child, we experienced firsthand the spell he cast over the young children in the room, which recalled the mystical calm of the presence of an infant that had led Montessori to define *The Silence Game*. The *dottoressa* herself acknowledged this unique ability of the infant to elicit prosocial behavior in older young children roughly a century earlier; nevertheless, in contemporary times we continue to divide school communities based on other recommendations in Montessori philosophy, including her theories on the Planes of Development.

Montessori described spontaneous self-discipline as an attribute of a normalized child, or one who is thriving because their developmental needs are being met. I observed spontaneous displays of positive prosocial behavior following primary-aged students' exposure to infants in the classroom; to elaborate, they interacted with the infant-visitor while being calm in their voices and respectful with physical touch, responding by expressing concern or even formulating possible solutions to the infant's displays of emotion, such as crying. While the baby was sleeping, they naturally adjusted the volume of their voices so as not to disturb the baby's slumber. I witnessed these changes in my students, which informed my practices in the classroom, acting as nascent research on the topic of empathy development.

This paper aims to elucidate a paradigm shift, making a case for expanding the notion of mixed-age groupings in the context of Montessori classroom environments in order to promote the development of a crucial prosocial behavior, empathy.

Literature Review

What is empathy?

One of the most comprehensive resources for delineating theories on the development of empathy is the seminal text *Empathy and Moral Development: Implications for Caring and Justice*, by eminent researcher in the field, Martin L. Hoffman, professor emeritus in New York University's Department of Psychology. Hoffman poetically describes that "...empathy is the spark of human concern for others, the glue that makes social life possible" (Hoffman, 2000, p. 3). In that same work, he also characterizes empathy as a *vicarious affective* response (p. 29), which helps to clarify two of its main components: empathy requires taking the perspective of another person (vicarious) and empathy involves a reaction based on emotions (affective). In *The Theory of Moral Sentiments*, composed nearly three centuries ago, Adam Smith characterized empathy as "changing places in fancy with the sufferer" (de Waal, 2005). Primatologist Frans de Waal goes back even further, crediting empathy as a crucial evolutionary trait: "This capacity likely evolved because it served our ancestors' survival in two ways. First, like every mammal, we need to be sensitive to the needs of our offspring. Second, our species depends on cooperation, which means that we do better if we are surrounded by healthy, capable group mates" (de Waal, 2005). The fact that we activate empathy to respond to others allows us not only to survive but thrive.

Hoffman (2000) asserts that "...empathy may lay claim to being a universal prosocial moral motive, at least in societies that place a high value on caring and justice" (p. 273), noting that cognitive contributions to empathy are brain-related and therefore accessible across cultures (p. 287). Empathy can be achieved by most all people, in all parts of the world, and it contributes to moral behavior.

Theoretical foundations that contribute to what we believe about empathy

In order to understand how researchers approach the topic of empathy, we must examine the history of its study. The theoretical foundations of the development of empathy are expounded upon by former teacher and outspoken social critic Alfie Kohn in *The Brighter Side of Human Nature: Altruism and Empathy in Everyday Life* (Kohn, 1990). Kohn delves into the history of the study of empathy and moral development, tracing its earliest mentions to either Adam Smith or David Hume, philosophers from the 1700s. In the modern era, familiar theorists in pedagogy have explored aspects that contribute to empathy, such as perspective-taking and identity (self-other distinction). In Jean Piaget's theory of cognitive development, the ability to take another's perspective is achieved in the concrete-operational stage (7-12 years old), which corresponds to Montessori's Second Plane of Development. Alternatively, Erik Erikson's psychosocial stage theory connects the refinement of identity with the period between 12-18 years old, the age range associated with Montessori's Third Plane of Development. Other perspectives include behavioral psychology which assumes empathic responses are derived from classical conditioning, with paired stimulus-response, whereas psychoanalysis assumes that each individual parent-child relationship informs all future interactions in one's lifetime.

In contemporary times, Hoffman (2000) offers three lenses for approaching prosocial (moral) development: social-learning, cognitive-developmental, and emotional-motivational. He explains that behaviorist models are one example of a social-learning framework for the development of empathy. Any model that incorporates the concept of taking another's perspective, including the element called Theory of Mind (hereafter as ToM), falls in the realm of cognitive-developmental theory, such as Piaget's theory of cognitive development or many of Kohn's assertions in *The Brighter Side of Human Nature* as he delineates the history of thinking

about empathy and theories describing its development starting in early childhood. Hoffman indicates his theories can be regarded from the emotional-motivational viewpoint (Hoffman, 2000).

We respond with empathy in many different ways

Hoffman celebrates the "multidetermined nature of empathy" while implying that we benefit from numerous modes of empathic arousal which enable observers to respond to whichever distress cues are available. While the modes of empathic arousal as established by Hoffman are considered to develop according to a defined sequence, they are also believed to each build on the preceding levels, which researcher de Waal compared to a matryoshka doll (Rieffe, Ketelaar, & Wiefferink, 2010). Results of the study by Rieffe, et al. (2010) appeared to confirm this "Russian doll" theory of empathy development, i.e. "prosocial actions" that develop later in early childhood, build on "attention to others' feelings" cultivated in late infancy, so that both will eventually be observed concurrently. When young children develop the ability to cope with their own emotions, researchers posit that they move from an emotional distress response (which is egocentric), toward empathy, when confronted with another's distress (Spinrad and Gal, 2018).

In Hoffman's work, these modes of empathic arousal are identified as mimicry, conditioning, direct association, mediated association, and role-taking. The most prevalent example of mimicry is the newborn's reactive cry. Infants display what Hoffman designates as "empathic distress" from their earliest days, which involves reacting to the stimulus of the sound of another infant crying with distress (Sagi and Hoffman, 1976). These displays of empathic distress are associated with "emotional contagion" (Rieffe, et al., 2010), wherein the young child mirrors the emotional states of those around them, particularly distress. Mimicry may operate on

afferent feedback (input from sensory organs transmitted to the nervous system), contributing to the ability to mirror the expressions and actions of others.

Conditioning occurs when someone experiences distress at the same time another is experiencing distress. This can occur in the caregiver-infant dyad, where the caregiver's facial expression can become a conditioned stimulus without physical contact, after two were initially paired. For instance, if a nursing parent is experiencing pain with breastfeeding, they may grimace and tense up, reactions to which their infant would be attuned. This subconscious visceral reaction from the parent could transfer to the infant via classical conditioning, so that when the parent grimaces, their infant begins to cry or exhibit other distress signals even if the parent is showing no other indicators of pain. Conditioning is not confined to negative affective stimuli; for example, the sucking response of one-day-old infants has been shown as able to be conditioned by gently stroking their foreheads. This type of classical conditioning on its own aligns with behaviorist models regarding social learning; however, Hoffman (2000) emphasizes that conditioning as it exists within his model departs from prior beliefs on the topic by operating under the research-validated conclusion that conditioning can be exhibited by newborns.

In direct association, cues witnessed from a victim or their situation can trigger memories of the observer's uncomfortable past experience. Hoffman (2000) distinguishes that the victim needs to be present in order for direct association to transpire, whereas in mediated association, the victim is absent, and information must be semantically processed and decoded by the recipient in order for them to relate to the victim and generate an empathic response. In simpler terms, the application of language, which is an abstract concept requiring more developed cognitive skills, in processing scenarios is a primary characteristic that helps differentiate between direct association and the increased complexity of mediated association.

Role-taking goes further, requiring imagining how another person feels; in order to do so, one must be able to engage in perspective-taking. This is the most advanced empathy-arousing mode that Hoffman (2000) defines, and like all other modes of arousal, may be attainable for typically developing children in the early childhood years. In a departure from established child development theorists who approach empathy development from a cognitive-developmental standpoint predicated a linear, sequential achievement of skills, Hoffman asserts that regardless of age, young children as young as hours-old newborns are primed to respond to others with empathy, to the best of their abilities based on their current developmental stage (Hoffman, 2000).

We can facilitate empathy development in young children

Young children specifically react to situations in ways that Hoffman connects to lower-order cognitive processing skills, which is contrary to the beliefs of previously accepted theories that necessitated the child be capable of advanced cognitive processing in order to respond empathically. He asserts that young children are provoked to respond in an empathic manner by different modes of arousal that are primitive, automatic, and relatively involuntary; these modes include mimicry, conditioning, and direct association (Hoffman, 2000, p. 5). All share the commonalities of relying on eliciting empathic distress, being limited by the necessity of the victim to be present in order to elicit a response and including minimal involvement of linguistic and other cognitive processing skills.

Adults can leverage this potential of the young child's empathizing skills to facilitate empathic growth in children through the process of *induction*, wherein the adult highlights the victim's distress and connects it to the child's action that caused it (Hoffman, 2000, p. 10). Kohn (1990) corroborates the idea that induction triggers the child's empathic proclivity and refines

the ability to take another's perspective, endorsing Hoffman's work in the field and aligning with the most current research.

Hoffman also notes that observers are quicker to help when the victim shows pain (Hoffman, 2000, p. 31-2). This could be extrapolated to the intense emotiveness of infants, which may efficiently trigger empathic reactions from preschool-age young children. One illustration of this effect is that the phenomenon of a crying infant not only triggers a strong reaction in their primary caregiver, but often evokes empathic responses from even young children, who may offer a comfort item to soothe the baby.

Many parenting techniques rely on assertion of dominance or withdrawal of affection; while Hoffman concedes that either may occasionally be appropriate in varying degrees of expression, neither appears to further the child's development of empathy. The earliest inductions a child will respond to function by pointing out direct, observable, physical consequences of the child's actions (Hoffman, 2000, p. 150). Such inductions must be developmentally appropriate, linguistically-accessible, and relatable to the child's own experiences. In a perspective which aligns with Montessori's theory of the construction of self which is integral to the young child's development in the First Plane of Development, Hoffman summarizes that "[t]hese prosocial moral scripts are not passively acquired but actively formed by children in a continuing process of constructing, synthesizing, and semantically organizing inductive information and relating it to their own actions and the victim's condition" (Hoffman, 2000, p. 11).

Although inductions appeal to the young child's predilection towards the most primitive modes of empathy arousal, it is worth clarifying that modes which require higher-order cognitive skills may also be mobilized: "...inductions activate certain empathy-arousing mechanisms—

mimicry if they get the child to look at the victim, role-taking if they encourage the child to imagine how [they] would feel in the victim's place, and mediated association if they bring up the child's relevant past experience" (Hoffman, 2000, p. 157). This confirms de Waal's matryoshka theory, which was elaborated on earlier in this piece.

The greater body of research in the field explains that individual differences in displays of empathy and prosocial behavior can be predicted by disposition, socio-cognitive development, and socialization practices. Parental warmth, sensitivity, and responsiveness, as well as secure attachment in the parent-child dyad, are all correlated with empathy and prosocial behavior in young children. Researchers summarize that "parents who allow their children to express emotions, who validate their children's feelings, and who help their children deal with emotions in constructive ways are likely to model strategies that enable children to express and regulate their emotions appropriately" (Spinrad and Gal, 2018, p. 41). Some emotional regulation behaviors that have been linked to empathy include parent encouragement of the child to express their emotions from an early age (including drawing attention to emotional states), parent modeling of problem-solving in response to the child's emotional distress, and overall parent responsiveness to the child's distress and awareness of what the child finds comforting when upset (Spinrad and Gal, 2018).

We can identify mature empathizers

Those who could be characterized as "mature" empathizers generally have self-awareness, understanding how they would feel and how most people would feel in a given scenario; they realize that outward cues such as facial expression, posture, and tone may not align with inner feelings; and they have achieved self-other distinction. It is this final characteristic- self-other distinction- that continues to fascinate researchers. One must be secure

Empathy in the first plane of development

in their sense of "self" yet be aware of the "other" as an independent entity with their own feelings, thoughts, and experiences, in order to productively empathize. Hoffman (2000) conceptualizes the development of self-other distinction as occurring in stages:

- unclear differentiation;
- awareness of self-other as independent entities;
- awareness of self-other having independent internal states; and
- awareness of self-other having independent identities, histories, and lives beyond the immediate situation.

Since experts have begun to record their theories regarding perspective-taking and attempts to identify the age of onset when young children are able to complete this task, the age at which theorists suppose that young children are capable of such a task continues to decrease.

Theory of Mind refers to a turning point in the child's cognitive development where they gain the ability to take the perspective of others, henceforth understanding that other people feel, believe, perceive, and interpret the world in different ways than they do. The young child is inherently egocentric in their early years, with significant variability in the development of ToM between three and four years of age (Ball, et al., 2017).

Children as young as three years old have been observed applying formal criteria (obligatory, generalizable, and unalterable) to make moral judgments, although they appear to more easily judge physical harm, as opposed to psychological harm or unfairness. For example, a young child will tend to recognize the affront of a child who bites another child, more easily than they can identify teasing words as pejorative when heard in interactions between peers. In order to recognize psychological harm, the child must be able to engage in perspective-taking. To assess fairness, the child must negate competing self-interest, toward which their natural

inclination veers, until around four years old. The development of ToM appears to influence children's capacity to make moral judgments, for example, by allowing them greater mental flexibility with new understanding that others can hold false beliefs (Ball, et al., 2017). It is beyond the scope of this literature review to provide an exhaustive review of the growing body of research centering on ToM as a primary contributor to the ability to take another's perspective; however, this literature review will proceed with respect to it as an established concept.

The way empathic reactions manifest in young children varies depending on age range, as chronicled by Hoffman (2000). From their earliest hours of life, newborns display the reactive cry. Around the end of the first year, one may observe egocentric empathic distress, an example of which is seeking self-soothing behaviors in response to another child's observed distress. Early in the second year, this develops into quasi-egocentric empathic distress, for instance, the young child offering their own preferred comfort items or comfort measures to comfort a peer in distress. They become more able to respond with concern rather than react with their own distress. By late in the second year, veridical empathic distress emerges. "The most advanced level of empathic distress involves distancing" (Hoffman, 2000, p. 91), necessitating that a young child reflect and utilize advanced cognitive processing skills in order to react appropriately. At this point, the child exhibits a further increased responsiveness to others' emotional states, displaying prosocial behavior like comforting, helping, and sharing. According to the available research, most typically developing preschool-age children are capable of empathy as prosocial behavior. The whole of this shift in empathic distress reactions occurs in the period from birth to three years old, which aligns with the first half of the First Plane of Development in the Montessori approach.

Additionally, interactions in the first year of life are defined by a stage called 'emotional contagion' or what Hoffman sometimes has referred to as 'global empathy'. To a certain degree, it is theorized that emotional contagion may be adaptive in early life. Alertness to others' emotions, and thereby awareness of potential dangers in the environment, may aid in our survival as a species. In addition, mirroring others' emotional states may contribute to in-group social cohesion which can positively influence mutual aid. Humans and other primates benefit from mirror neurons; these cells in the brain fire signals when one person observes another completing a specific act. Mirror neurons enable the observer to imitate, which is critical for learning, especially during infancy and early childhood. However, researchers have surmised that empathic distress may be maladaptive in young children beyond infancy, with a high incidence of empathic distress reactions correlated to poor emotional regulation skills and less frequent displays of prosocial behavior (Rieffe, et al., 2010). Circling back to de Waal's matryoshka theory and Hoffman's multidetermined nature of empathy, young children can and should utilize the multiple modes of empathy arousal that are at their disposal.

We know there are benefits of mixed-age classrooms

A mixed-age classroom can offer a type of replication of the family environment, simulating the spacing in age between siblings in a family unit (Paul, 2014). Mixed-age groupings are integral to the Montessori method; however, individual Montessori schools, regardless of the extent of program fidelity to the method, may not always design their classrooms in a way that supports this aspect of Montessori philosophy. Successful implementation requires educators' intentional planning, scaffolding for different age groups in a mixed-age setting, as well as the need to have a broad knowledge about child development and the ability to communicate the benefits of mixed-age groupings to families (Paul, 2014).

We understand the importance of play

The importance of play in early childhood is generally undisputed; however, emerging research has begun to clarify the importance of pretend play and its ability to extend children's learning (see Figure 1). For the purpose of this literature review, *pretend play* is identified by its connection to real-life activities that a child can enact whereas *fantasy play* involves unrealistic scenarios. This relates to an often-misunderstood aspect of Montessori philosophy: Montessori did not endorse adult-led fantasy play which she asserted distracts the child from integrating impressions of the world around them and leads to confusion due to the child's credulity and undeveloped ability to work in abstractions in the First Plane of Development (from birth to age six). Pretend play, however, may support the child's optimal development. Tellingly, the Practical Life content area, which is unique to Montessori education, hinges the use of real-life objects (which can be referred to as *realia* in the context of education). Recent research explores children's desire to engage with realia rather than toys, especially for children who are part of Montessori classroom communities (Taggart, et al., 2018). While researchers discovered that preschool-age children from Montessori schools prefer to engage in real activities, children enrolled in mainstream preschools who more often indicated a preference for pretend activities also "often expressed being unable, unwilling, or unallowed to do the real thing; they could get a hook stuck in their finger when really fishing, or their parent would not allow them to use real knives yet" (Taggart, et al., 2018, p. 2). This led to the conclusion that overall, young children yearn for real-life experience. Montessori elaborated

[i]n our Houses of Children we respond to the child's natural love of play but we bring the play activities of the child close to reality. One has to study the materials and apparatus in our Houses of Children and the performance of exercises of practical life and sensorial exercises there by the children to realize how beneficially the play activities of the children can be offered to present facts instead of fancies and realities instead of

fiction. It is clearly seen that the pleasure of play activity is increased by this contact with reality. (1989, p. 76-77)

One reputable source for information on child development, the US-based National Association for the Education of Young Children (NAEYC), published observational research which defines “baby play” as utilizing dolls in the context of dramatic play (Paul, 2014). That research elucidated that infants in the mixed-age classroom contribute to social development of their older cohorts by acting as a model for them to observe, then act out their understanding with dolls in dramatic play. For the purpose of this research, we prioritize exposure to infant humans in the classroom environment, with the use of pretend play allowed to extend on young children’s experiential learning.

Figure 3

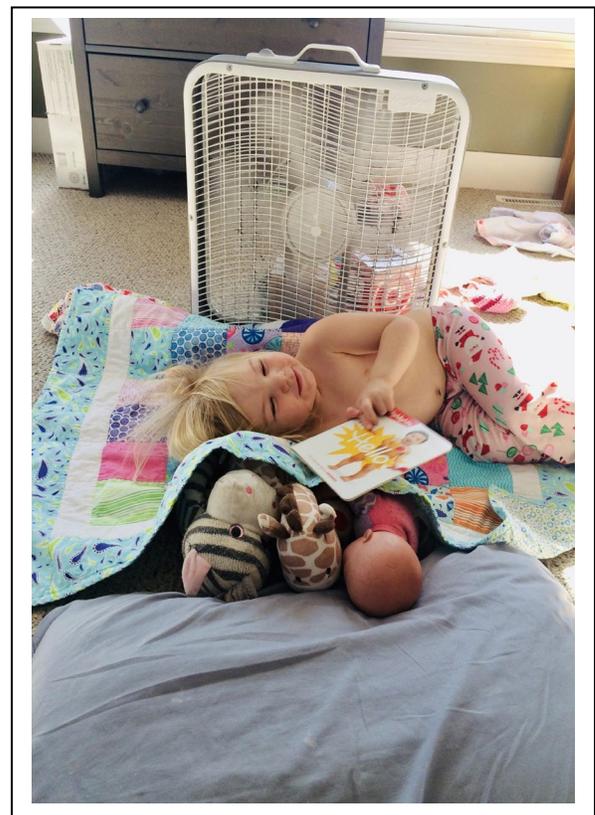
Willa Coyne, at two years, nine months old enacts daily rituals in her baby play

Source: Karen Buelow

Roots of Empathy: a trailblazing program in empathy development we can learn from

In refining young children’s understanding of infancy and infant development, the primary researcher in this study believes that there is potential that children will increase their awareness

of self, experience more satisfying family life integration, and display more socio-emotionally robust interactions with their peers, following implementation of the intervention central to this



action research proposal. This perspective is corroborated by a groundbreaking program in the field, Roots of Empathy:

Roots of Empathy is a program for school-aged children that involves them, right in their own classrooms, in the human dynamic of the parent–baby relationship. It is a program that has the capacity to instill in our children a concept of themselves as strong and caring individuals, to give them an understanding of empathic parenting and to inspire in them a vision of citizenship that can change the world. The program puts relationships at the [center] of what creates a civil society, whether that society is a small classroom, the whole school, the community, the country or our ever-shrinking globe. (Gordon, 2009, p. 6)

This assessment echoes Montessori, who noted that "[t]he freedom that is given to the child is not liberation from parents and teachers; it is not freedom from the laws of Nature or of the state or of society, but the utmost freedom for self-development and self-realization compatible with service to society" (1989, p. 88).

Roots of Empathy (RoE) is a nonprofit organization that was established in Canada by educator Mary Gordon in 1996. Their evidence-based social-emotional learning programs are now implemented in several countries around the globe, and the approach continues to be the subject of research in the field.

The primary goals of RoE are to:

- (1) develop children’s social and emotional understanding,
- (2) promote children’s prosocial behaviors and decrease their aggressive behaviors, and
- (3) increase children’s knowledge about infant development and effective parenting practices (Schonert-Reichl, et al., 2012)

A full cycle of the Roots of Empathy program consists of 27 sessions total, at a frequency of every 3-4 weeks and a length of 30-40 minutes per session. These sessions are divided into nine themed groups that include a pre-visit, family visit with a parent-child dyad, and post-visit all facilitated by a trained instructor. Seeds of Empathy (SoE) is an adaptation of RoE for three-

Empathy in the first plane of development

to five-year-old children; otherwise, RoE has programs under its umbrella for kindergarten, grades 1-3, grades 4-6, and grades 7-8. To adapt these age groupings to classic Montessori mixed-age groupings, SoE and the RoE kindergarten curriculum correspond with the Montessori primary classroom three-year cycle.

Insights from the body of research assembled by Spinrad and Gal (2018) serve to inform both school-based and parent-focused prevention/intervention programs. Researchers assert that social-emotional learning (hereafter, SEL) programs have contributed to more noteworthy outcomes when they have been implemented starting at younger ages. They also share that SEL programs that emphasize skills related to prosocial behavior (empathy, recognizing one's own and other's emotions, behavioral self-regulation, perspective-taking, et cetera) are effective at increasing displays of prosocial behavior. Therefore, it stands to reason that committing formal interventions, like RoE, to promote empathy in young children capitalizes on the incredible plasticity of the brain, with observable positive effects on the development of prosocial behavior.

Research

This action research project framework is predicated on the hypothesis that introducing infants into the Montessori primary classroom environment will offer beneficial socialization for all children involved, positively contributing to the development of empathy and overall displays of prosocial behavior among preschool-age children.

Connecting the research to its foundations in Montessori theory

Montessori considered prosocial development to be the human's adaptation to their environment— a topic she describes in detail in many of her works, including *The 1946 London Lectures*, which some regard as the most comprehensive source for understanding the primary

age range in the Montessori approach. She also often highlights the importance of mutual or *dyadic learning* and the power of modeling,

When a new being comes into existence, it contains within itself mysterious guiding principles which will be the source of its work, character, and adaptations to its surroundings. The external environment in which an animal finds itself does not only provide it with the means of its physiological existence but it also furnishes stimuli for the special characteristics of each type of animal, and thus enable it to contribute in its own way to the general harmony and conservation of the world. (1966, p. 19)

Within seconds of birth, every interaction a child experiences serves to teach them about the world. The young child is endowed with incredible potential for development, primed for growth via biological processes like synaptogenesis and synaptic pruning: the development of synapses, or connections, between neurons in the brain, allowing information to be processed, *and* the ultimate destruction of synapses that are not being stimulated through the child's interactions with the world around them. Researchers have identified infancy as a crucial period for synaptogenesis, whereas much of the synaptic pruning that occurs in a person's lifespan will begin around three years old and continue for the duration of the early childhood years.

Montessori referred to the period in the child's life from birth to age six as the *First Plane of Development*. This plane is informally divided in half, with the period from birth to three years old identified by rapid growth and the period from three to six years old associated with consolidation, involving assimilation and integration of information that was acquired during the first half of the plane. Despite the aforementioned characterizations, the First Plane of Development is defined by the unifying theme of the construction of self. This personal growth enables the young child to refine their identity and determine their role in society, the mission of the subsequent Planes of Development.

The body of research on the development of empathy in children, as elucidated in the literature review, aligns with the ages, stages, and key aspects of Montessori theory of child

development in the First Plane. For instance, from birth to three years old in the period defined by growth that encompasses the first half of the First Plane of Development, the young child passes through the all phases of empathic reactions as delineated by Hoffman— the newborn reactive cry, the egocentric empathic distress of the one year old and the quasi-egocentric empathic distress of the two year old— before arriving at veridical empathic distress on the cusp of the third year of life. The strong connection between the philosophical foundations of Montessori and theories about the development of empathy, only serves to emphasize the value of this action research proposal.

Crafting a research design

When I began developing this study, it seemed prudent to design a research plan that was predicated on quantitative data collection. Upon further reflection, I was able to determine that erring toward quantitative data was a response to external pressure to “prove” the validity of executing this study under a school bureaucracy that was, on the whole, unsupportive. When the head of school and board of directors of that unaffiliated private school declined to support this action research project, it freed me to construct a new methodology that was equally as rigorous yet focused on qualitative means of collection such as narrative inquiry, which is both suited to the professional literature and provides a human-centered element that responds to my personal values as well as corresponds to the Montessori approach.

In addition, I find it imperative to factor into the research design asking consent of the students who are part of the intervention. We are careful, in many daily interactions in the Montessori classroom environment, to encourage consent and interact in a way that promotes autonomy— performing action research should be no different. When I was asked to, rather than submit for IRB approval with endorsement from the school, execute this action research project

Empathy in the first plane of development

without gaining informed consent from any of the parties involved (child-participants and their parent(s)/guardian(s)), it reinforced how vital this process is for contributing to the safety of participants and the ethical conduct of researchers.

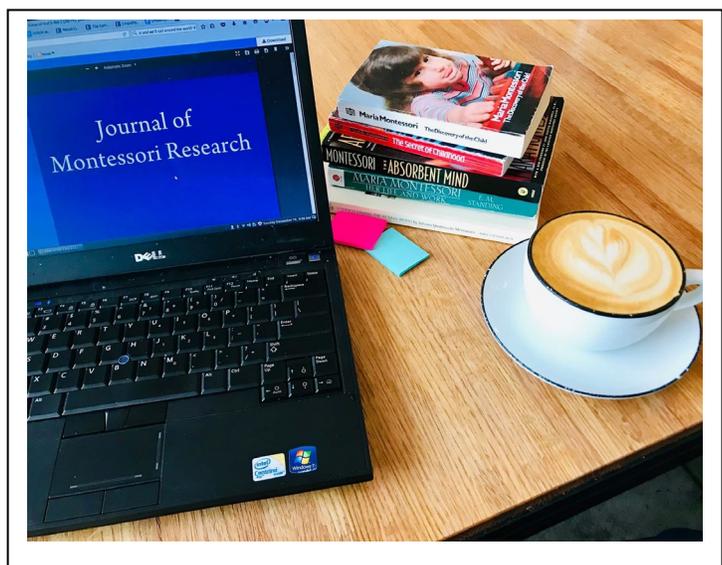
It is crucial to question who the stakeholders in carrying out action research are: a school administrator who is not involved in the daily life of the classroom environment, a faceless board of directors who has never bothered to meet the classroom teacher, or the students who aim to benefit from the outcomes of careful, systematic action research? When a teacher-researcher is stifled by commands including “[o]ur directive is to focus on your classroom community,” it truly shows a poor understanding of the purpose of action research and its established role in furthering the legacy of Montessori. Sheila Radice, in a recounting of a conversation that she had with the *dottoressa* in *The New Children: Talks with Dr. Maria Montessori*, recalls:

I don't [know] what to do [...] There is so much of it, and nobody will ever collaborate. Either they accept what I say, and ask for more, or else they waste precious time in criticizing. What I want now is a body of colleagues, research workers, who will examine what I have already done, apply my principles as far as I have gone, not in a spirit of opposition or conviction, but as a matter of experiment [...] I have never yet had anyone—starting from my own previous body of knowledge—work shoulder to shoulder with me in a scientific independence. (Radice, 1920, n.p.)

Figure 4

The primary researcher settles in

Source: Aysia Plate



Methodology

Conducting a narrative inquiry is a deeply human experience, a soulful journey into the storied worlds of others (Rosenberg, 2019).

In seeking to fulfill Montessori's request, I became awake to the possibilities of applying narrative inquiry as a research method. Narrative inquiry is a form of qualitative research, able to be performed with a small sample size, based in constructivism— needless to say, beautifully apt for the Montessori classroom environment. We can conceptualize narrative inquiry as being composed of a series of triangulations; work in the field builds on the triumvirate in Dewey's (1938) theory of experience (situation-continuity-interaction) and the current framework is based on Clandinin and Connelly, who identified “commonplaces of narrative inquiry” which are temporality-sociality-place (Huber, J., et. al., 2013, p. 226).

The grand narrative attends to three commonplaces in relation to both the story and the context in which the story is told or discovered--time, place and sociality. Time, or temporality, acknowledges that everything is transitional and there is continuity between the past, present and future. The past reflects significance, the present infuses value, and the future conveys intention. Thus, understanding the past and imagining future possibilities takes place from the present viewpoint. Place refers to the concrete locations and surroundings of events and experiences, including the research context. Sociality has two parts. Firstly, it includes external social conditions, such as cultural, institutional, societal, and linguistic particularities, and, if relevant, the nature of the relationship and interactions between participants and the inquirer. Secondly, it includes internal personal conditions, such as feelings, hopes, desires, aesthetic reactions, existential viewpoints, and moral dispositions of the story's characters and, if relevant, those involved in the research study (Clandinin & Huber; Clandinin, Pushor & Orr, 2007). (Rosenberg, 2019)

Montessori practitioners are intimately familiar yet with another interconnected group of three: the guide, the child, and the environment, who work in concert with one another.

The suitability of narrative inquiry for action research is established (Heikkinen, et. al., 2012), though it may be worth clarifying that action research describes interventions in the social

Empathy in the first plane of development

and physical reality, whereas narrative inquiry involves assembling and analyzing narrative accounts about those interventions.

There are ontological and epistemological assumptions that underpin narrative inquiry, which include that:

- humans lead storied lives
- our understandings of the stories we tell and of the stories we hear others tell shape our lives
- multiple interpretations and vantage points are possible
- individual experiences can inform and give meaning to shared experiences and social reality
- stories represent a way of knowing (Rosenberg, 2019, n.p.)

While narrative inquiry is a tool that can help us embrace the complexity of the human experience versus determining "objective truths" (Rosenberg, 2019), it is equally important to recognize that its use promotes equity, making participation accessible to people of a broad range of abilities, educational backgrounds, and other intersectionalities, thus allowing a greater breadth of "truths" to be shared. Oral histories have existed for much longer than other histories. Storytelling even has a prominent role in the Montessori classroom environment in the Second Plane of Development, when the Great Lessons are shared and children refine their origin story. The use of narrative inquiry puts us in the unique position to co-create a narrative that has the power to amplify voices that often go unheard.

The stories from which a narrative can be composed are collected from many different sources. It is possible to use a combination of transcription analysis (presentations, conversations, interviews), document or artefact analysis (journals, diaries, letters, e-mails,

blogs, biographies, artwork, pictures, photographs), and analysis of storied field notes (observations, interactions). How to synthesize multiple narratives when re-storying is at the discretion of the inquirer; it may be according to a chronological timeline of events, concentrated around a specific theme, or represent a juxtaposition of contradictions or different roles (such as researcher-participants) (Rosenberg, 2019).

The concept of “validity” has evolved since the conceptualization associated with statistical research in the 1960s (Heikkinen, et. al., 2012, p. 6); embracing a relational understanding of researchers and participants helped to bring narratives into the research world (Huber, et. al., 2013, p. 217). As it stands, narrative inquiry involves all the important parts of empirical research (Rosenberg, 2019): rationale, theoretical foundation, phenomenon of interest, ethically justifiable methods, rigorous analysis, and scholarly representation of results. The idea of validity has been further elaborated on in "Validation Principles of Action Research" proposed by Heikkinen, Huttunen, and Syrjälä, in an article published in 2007 in *Educational Action Research*, which has been peer-reviewed more than once, swiftly becoming a touch point among narrative inquiry researchers. These principles include historical continuity, reflexivity, dialectics, workability, and evocativeness. To summarize it as succinctly as possible:

According to the principle of historical continuity, good action research recognizes the historical evolution of action both as a general macro-level phenomenon and as a micro-level continuity of historical action. The development of action does not begin in a vacuum, and action never ends. The researcher should therefore pay sufficient attention to the historical background of his or her topic. (Heikkinen, et. al., 2012, p. 8)

Reflexivity refers to the nature of the researcher's relationship to the subject matter, their epistemological and ontological considerations (in plain terms, the researcher's beliefs on the nature of knowledge and of reality itself), and how they describe their materials and methods.

Dialectics (or, investigating the truth of opinions) is predicated on giving space for different voices as well as preserving voice, conveying the authenticity of the protagonists of the narrative.

Workability determines if practices are feasible to enact, what kind of discussion is provoked by the research, how ethical dilemmas are managed, and the research ultimately empowers people to act. It remains the burden of the researcher to recognize dominant ideologies, coercion and oppression, which can impact the narrative.

Evocativeness asks that our research be thought-provoking. It should touch the reader on an emotional level. This can extend to aesthetics, of how the research is presented in order to pull the reader through the narrative. It is necessary to guard against remaining in the cognitive-rational sphere, or else we have no hope of creating a meaningful narrative inquiry.

If there are potential limitations of narrative inquiry, we can openly acknowledge them. Stories are always unfinished (Huber, J., et. al., 2013, p. 227)— this is not necessarily a constraint but a point of consciousness. Curiously, in recalling my own narrative surrounding this action research project, the following passage stood out: “Their inquiry draws on two moments of tension when children’s and teacher researchers’ stories to live by bumped against stories of school and ways in which the teacher researchers respond in a way that could be interpreted as resisting the story of school” (Huber, J., et. al., 2013, p. 231). It is possible to, in the course of executing research, come up against friction between endorsing the dominant narrative and remaining authentic to the students and their classroom environment. Ethical considerations “...extend beyond regular institutional requirements of privacy, confidentiality, integrity, and generally avoiding harm, to also include relationship, [prosocial], and moral values. Narrative inquiry requires researchers to make a moral investment in their relationship

Empathy in the first plane of development

with participants" (Rosenberg, 2019, n.p.). None of this appears to be insurmountable, though it is imperative that a researcher be mindful.

Informed by this methodology, I aim to construct a new action research proposal:

Use narrative inquiry to challenge the parameters of the Montessori primary classroom environment to include infants.

Application

Many of the narratives used as illustrative examples in the seminal text *Engaging in Narrative Inquiry with Children and Youth* were collected over many years. This has implications for the primary classroom, where a three-year cycle has the potential to contribute volumes to a narrative inquiry-based action research project.

While the action research project component is central to this proposal, the primary researcher envisions much broader implications for this work. The interactive experience between infants and young children could be scaffolded with Montessori-aligned, intentional lessons presented in the classroom environment and materials for shelf work that support the young children's growing understanding of infants and human development. The impact of this intervention may be positively changed by designing a robust, integrated program for the classroom environment.

Many of the Practical Life activities involved in promoting care of self can be effectively applied to baby play to develop skills that both benefit the young child's development and refine their ability to care for infants. One can frame the inclusion of such materials as an extension of the classic practical life activities; for instance, offering high-quality, newborn-sized clothing and cloth diapers for dressing weighted dolls, can effectively function as an extension to the dressing frame materials. One resource for lifelike, weighted "demonstration dolls" (typically used for

Empathy in the first plane of development

childbirth education, lactation support, or babywearing demonstration) is Renate's Puppenstube from Germany; however, the cost of this lifelike baby doll corresponds to the professional purpose of the product. Several babywearing educators have created free tutorials for producing cost-accessible weighted dolls, which can be accessed online via keyword search. Another practical life activity that can be integrated into baby work involves washing up, utilizing soap, washcloths, and tubs of water to bathe dolls made of water-resistant, soft materials such as vinyl or a silicone-vinyl blend (it is important to ensure that any holes are sealed, in order to prevent mold from accumulating in the interior of the doll's body; see Figures 2, 3).

Figure 5

The primary researcher prepares baby dolls for bathing work, plugging openings with hot glue

Source: Aysia Platte



Figure 6

Two young Montessori primary students bathe baby dolls during their work period.

Source: Fox Valley Montessori Academy Instagram

Montessori practitioners may typically eschew the use of dolls in the classroom environment, although the aforementioned examples clearly illustrate that one can adapt their use in alignment with core principles of the Montessori approach. The research by Taggart and Lillard affirms that young children desire real-life tasks, even in their pretend play



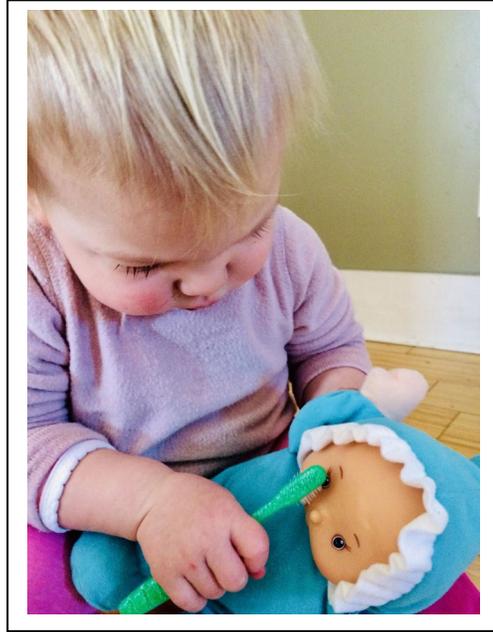
scenarios (see Figures 7 and 8); classroom experiences involving specially-curated baby dolls and extensions of practical life activities fit this model by integrating the element of functionality that research demonstrates attracts young children. This can be further extended, via explicit presentations of grace and courtesy, to apply the skills that have been honed in classroom work to care of the infant-participant in the intervention program or any younger siblings in the child's household; for instance, offering to fetch a diaper for a caregiver and even assist in diapering the infant. If the young child is able to refine their infant care skills within the context of the classroom, the primary researcher hypothesizes that their experience caring for actual infants will be more satisfying as well as safer for the infants.

Figures 7 and 8

Willa, as an infant (left) and a preschooler (right), enacts Practical Life with her baby dolls.

Source: Karen Buelow

The intervention can also be supported in other content areas in the Montessori primary classroom environment, most notably, culture. Consider a common question posed in early



childhood and again in the early elementary years when the sense of chronology begins to solidify, which inspires dread for many parents, who are unsure of how to respond: "Where do babies come from?" The young child is curious about reproduction, human growth and development; this interest can be satisfied by the tactful engagement of a skilled Montessori guide. One can discuss life cycles, using models and images, similar to how animal life cycles are presented; this can include showing different stages of embryonic or fetal development, as well as growth from infancy through adulthood. The way different world cultures are represented in the continent boxes can bring infant care into focus, for example, images depicting different baby carrying devices used around the world (some examples of which are *amauti*, *cradleboards*, *rebozo*, *manta*, *capulana*, *kanga*, *meh dai*, *daim nyias*, *podaegi*, *onbuhimo*, *selendang*, and more). If one considers the breadth of disciplines that are involved in culture studies, there are many ways in which understanding of the human being can be developed further.

The young child's linguistic development can be refined using infant development as a topic for work that is typically associated with the content area. One skill that is important for language development is sequencing; the timeline of a typically developing infant's growth can be used to illustrate sequences in literacy work. Many words related to the infant's everyday life follow patterns that are helpful in developing decoding and encoding skills for older young children in a phonics-based approach like Montessori endorses, such as the consonant-vowel-consonant pattern of phonetically-regular words like bib, mat, tub, and cot, or words involving blends such as crib, milk, pram, or sling. These sets can be brought to life with small language objects and used with the moveable alphabet. Other sets of words may involve verbs that represent movements an infant's body makes in their growth progression, such as roll, sit, stand, step... and beyond. Topics of children's literature can emphasize proper infant care, elaborate on infant development, or simply represent biological norms, normalize practices like breastfeeding such as in Lisa Marie Koehler's *The People You May See* or *What Does Baby Want?* by Tupera Tupera.

These strategies for incorporating "baby work" into the Montessori primary environment, are only a few of the many possibilities that exist; nevertheless, they clarify how this information can be seamlessly integrated into various content areas within the classroom environment to provide a wraparound experience that forms part of the intervention.

Per the methods of narrative inquiry, transcription analysis can be used to inform the narrative. Interviews are subject to this analysis, so as a baseline I chose to provide an example which could be woven into a storied piece.

...as we design a narrative inquiry, we need to consider the reflexive, iterative processes of moving from being in the field, to field texts, to research texts. As narrative inquirers, we first co-compose a field of experience with participants and then begin to engage in processes of co-composing field texts (what is often called data). As we begin to retell

these field texts—that is, as we begin the narrative turn from telling to retelling— we begin to compose interim research texts such as narrative accounts and final research texts such as articles, books and dissertations. This is not a straightforward linear process. (Clandinin, et. al., 2016, p. 24)

I had the opportunity to interview Caitlin O'Connor, M.S. Ed., a 2015 alumna of UW-River Falls' Montessori Teacher Education Program, about similar experiences she witnessed in her classroom environment. In fulfillment of the requirements of her master's degree, Caitlin executed action research on play in the Montessori classroom environment. She was inspired by observing what she identifies as an "intrinsic need" (C. O'Connor, personal communication, June 14, 2020) for young children in the Montessori primary classroom environment to engage in certain types of play, including baby play (in the context of family play). She too, brought "baby work" into the classroom, via activities such as doll washing. She cautions that play in the classroom, though research-validated in its importance, may come under negative criticism if practitioners "lack the intentionality" of developing a program that meets students' observed developmental needs.

Caitlin also described how responding to her students' desire to learn more about infants positively impacted her experience of teaching in the classroom while pregnant. She recalled how the children tracked the growth of her fetus, checking for reference points of size weekly on her "bump date". After her first child was born, she resumed teaching after a five month-long parental leave with her son coming to visit the classroom occasionally. A baby book detailing his milestones became a fixture in the peace area in the classroom, too. A benefit of integrating baby play (and experiences with actual infants) into the classroom environment is that young children learn about "existing as a member of a community" (C. O'Connor, personal communication, June 14, 2020)— which hearkens the words of Roots of Empathy founder Mary Gordon, who

Empathy in the first plane of development

asserted these types of experiences "inspire in [children] a vision of citizenship that can change the world" (Gordon, 2009, p. 6).

Considerations

We can acknowledge gaps in the research

Researchers in the field aim to determine if levels of empathy can be defined empirically (Rieffe, et al., 2010), confirming Hoffman's theories on the topic of empathy which are considered formative in this field. As of the writing of this literature review, levels of empathy have not yet been established as fact.

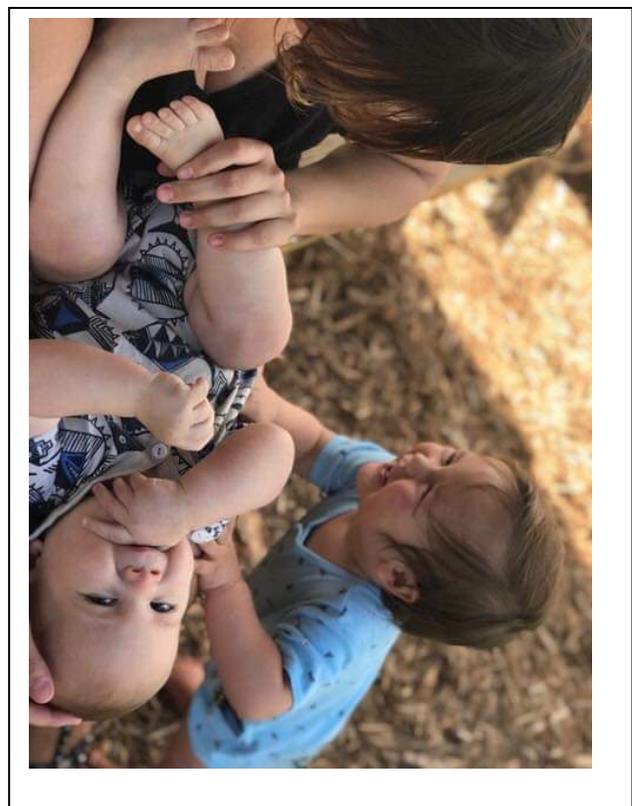
Additionally, some researchers express concern regarding the suitability of self-report questionnaires (often used with older children and adolescents) with young children, particularly those which require verbal responses (Howe, et al., 2008). There exist gaps in the research due to the construction of studies, in particular the development of metrics that can be utilized to accurately assess empathy.

Figure 9

The primary researcher cares for two infant students

Source: Fox Valley Montessori Academy

Facebook page



We must protect infant well-being

One constraint of the current body of research is understanding the impacts of this type of experience on infants. While we know that there are marked benefits for young children, validated by research, the potential impacts on infant-participants is less clear. While it is vital to ensure that any research involving infants is not harmful, that is a baseline— it should also be beneficial to them. This research is being formulated at a pivotal time in history; in the long timeline of human life, it is only very recently that people began to believe that infants can experience pain, for example! The researcher consulted with Dr. Rebecca Woods, Ph. D., director of the Infant Cognitive Development Lab at North Dakota State University, in order to explore the potential benefits for infant participants that could be investigated in subsequent action research projects. Dr. Woods advised that interactive dyadic experiences can benefit infants' speech development as well as facilitate social-emotional learning, so designing a research framework around a hypothesis related to either area of development could potentially help clarify any positive impacts (R. Woods, personal communication, March 3, 2020).

We notice implication for other age ranges

This research, while concentrated on the entire span of the First Plane of Development, carries bold implications for other crucial periods in human development. For instance, in the Second Plane of Development, from six to twelve years old, the child explores their identity, their role in society, and their origin story— all of which loop over the content of this study. Let us recall the full title of Hoffman's seminal contribution to the field, *Empathy and Moral Development: Implications for Caring and Justice*, as well as the name of Kohn's book on the

Empathy in the first plane of development

subject, *The Brighter Side of Human Nature: Altruism and Empathy in Everyday Life...* both tomes connect empathy to broader concepts. All of those topics strongly compel the child navigating the Second Plane: altruism, caring, justice, and, overarchingly, morality. In fact, some characterize the child in this Plane as "the lawyer" because of their constant deliberations about the nature of moral behavior!

When one considers that the First Plane of Development and the Third Plane of Development (from twelve to eighteen years old) share characteristics, just as the Second Plane of Development and Fourth Plane of Development (from eighteen to 24 years old) do, it becomes obvious that no part of society is left unaltered by this effort to expand the notion of mixed-age groupings in the context of Montessori classroom environments in order to promote the development of empathy in children.

Montessori fervently believed that early childhood was formative in the development of humankind:

If no help is given to a child, if his environment is neglected, his psychic life will be in constant danger. A child is like a foundling in the world. He is exposed to harm. He must struggle for his psychic development and may fail in the contest. Adults do not help much since they do not even know the forces at play. Much less are they aware of the miracle that is taking place, the creation of psychic life from what is apparently nothing. We can no longer remain blind to the psychic development of the child. We must assist him from his earliest moments. Such assistance will not consist in forming the child since this task belongs to nature herself, but in a delicate respect for the outward manifestations of this development and in providing those means necessary for his formation which he cannot obtain by his own efforts alone. (1966, p. 45-6)

Empathy in the first plane of development

The evidence that exists affirming the importance of empathy and the development of prosocial behavior confirms Montessori's theories, and compels us to facilitate the experiences required for the child's optimal development.

Figure 10

*Annika Johnson, age 6 ½,
tandem carries two baby dolls
during play, having seen infants
tandem carried in everyday life*

Source: Aysia Platte



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Appendix A

The following is the original action research proposal with research questions, design and instruments intended to be carried out over an 8 – 10-week period

Original Research

Are there measurable benefits to Montessori classroom experiences that involve children of the full age span of the First Plane of Development (birth to age six)?

Subsidiary questions

Does regular exposure to infants increase displays of empathy in young children?

Is Theory of Mind positively correlated to higher levels of empathy?

History

The original research design was produced as an action research project in fulfillment of the Montessori Teacher Education Program at University of Wisconsin-River Falls. The intended site did not recognize the importance of research in the Montessori approach and refused to comply with standards of ethics in research, so this action research project could not be executed as planned. These circumstances have allowed the researcher to consider reformulating the research design to craft a more sustainable approach that can be executed at a high-fidelity Montessori school in the future.

Purpose

This study aims to record young children's responsiveness to infant emotional states (especially distress), corresponding to theorized levels of empathy as established in the available literature, in response to regular exposure to an infant within the context of a Montessori primary classroom environment (students age 2.5 years old to 6 years old). A parent-infant dyad will be invited to join the classroom four times in a nine-week period, at intervals of once every three

weeks, for a duration of 30-45 minutes each session. The preschool-age children will have the opportunity to ask questions about the infant's current developmental stage, observe the parent care for their infant, and interact with the non-walking infant (ideally age 3 months to 9 months at the start of intervention).

The research team will utilize specialized questionnaires (EmQue) in their data collection, to survey the child-participants' primary caregiver(s) in the home and at school, before the experiment and after the experiment, in order to set a baseline and examine any change(s) that may be related to the interventions employed. A version of this questionnaire specifically for educators will be completed by the classroom assistant before and after the intervention period.

The current body of research points to the importance of Theory of Mind as foundational to the development of empathy, so child-participants will perform a specific task (the unexpected contents task) related to Theory of Mind in order to evaluate this facet of their cognitive development, as well as to compare the results with those of the questionnaires completed by their primary caregiver(s) to determine any relationships.

The primary researcher posits that exposure to infants will contribute to a measurable difference in child-participants' responsiveness to others' emotional states (particularly distress). Aligned with current research in the field, the researcher anticipates a positive correlation between evident Theory of Mind development and level of empathy assessed based on questionnaires. In addition, the researcher hypothesizes that child-participants' ability to identify infant needs will increase following regular exposure to infants in the Montessori primary classroom environment.

Materials

Empathy in the first plane of development

- Empathy Questionnaire (EmQue)
(source: <https://www.focusonemotions.nl/empathy-questionnaire>)
 - parent version
 - teacher version
- a labeled, clearly-recognizable container
 - "unexpected contents" Theory of Mind task
- a small, clearly-recognizable object
 - "unexpected contents" Theory of Mind task
- video recording device
 - for instance, the researcher's personal mobile phone
- art supplies (paper, markers or other writing utensils)

Intended method and procedure for collecting data

Quantitative data collection involves:

- EmQue questionnaire
 - Parent(s)/caregiver(s) will receive the EmQue (parent version) in the week prior to when the first parent-infant dyad visit is conducted. This will function as a pre-test. EmQue asks parent(s)/caregiver(s) to reflect on their child's behavior in the prior two months. That noted, the EmQue will be distributed to parent(s)/caregiver(s) again, in the week following the final parent-infant dyad visit. This will function as a post-test, with the "prior two months" that parent(s) must reflect on encompassing the nine-week period during which the parent-infant dyad visits were completed.

Empathy in the first plane of development

- During these same time frames, the EmQue (teacher version) will be distributed to the classroom assistant to complete.

Qualitative data collection involves

- Video recording
 - The parent-infant dyad visits (four total) will be recorded, in order for the researcher to analyze their content and derive insights.
- Child-participant artwork samples
 - The child-participants will be invited to wish the parent-infant dyad farewell by making a card with their good wishes for the baby's future (a practice derived from the Roots of Empathy program). It is possible that the children's artwork will reveal further information about their understanding.

Intended means of data analysis

- The researcher will compare pre- and post-intervention parent EmQue scores, to analyze for trends and changes.
- The researcher will compare pre- and post-intervention teacher EmQue scores, to analyze for trends and changes.
- The researcher will watch recordings of parent-infant dyad visits in order to articulate child misconceptions, insights, or any other interesting revelations, in the children-participants' own words.
- The researcher will interpret artwork crafted by child-participants, in order to articulate child misconceptions, insights, or any other interesting revelations, in the children-participants' own words.
- The researcher will analyze observations for examples of empathic behavior.

Other means of data collection Since the action research project could not be executed as originally intended, the researcher developed the following ideas in order to gain insights:

- Distribute a survey to local parents, generated using Google Forms

This type of informal study could incorporate both types of data: quantitative data by measuring participants responses based on a scale assigned numeric values and qualitative data by offering an open comment section on the survey for participants to record their anecdotal observations of empathic, prosocial behaviors in young children in their lives.

This means of data collection could be utilized pre-intervention, in order to show the value of the proposed study to any stakeholders (such as members of school administration) who may need additional convincing as to the benefits of supporting research in the Montessori classroom environment.

Additional notes on how empathy has been approached in quantitative studies

Many researchers aim to identify correlation between displays of empathic behavior and the ability to take another's perspective, Theory of Mind (ToM), which is validated by Hoffman's identification of role-taking as the most advanced mode of arousing empathy. There are a number of established tasks used to evaluate the presence of ToM in young children. In the "uncommon desire" task, the child is primed with both a desirable and undesirable choice, makes their own choice between the two, then is asked to assess another child's choice given the same options after being primed that that child's preference is the opposite of theirs (that which is called the undesirable choice). If ToM is developed, the child will recognize that another child may select a different choice than they did; if ToM has not yet developed, the child will assume the other prefers the same choice as them, despite having been informed to the contrary. In the "unexpected contents" task, the child is shown a closed container, then it is revealed that the

Empathy in the first plane of development

contents of the container do not match that which is depicted on its label; the child must determine what another child would expect is located inside of the container. If ToM is developed, the child will understand that another child would expect the contents to match the label, not yet having seen the unexpected contents; if ToM has not yet developed, the child will assume another child would know of the unexpected contents, not realizing that others do not share their experiences. Research on the development of empathy may incorporate one of these tasks in order to assess the child's development of ToM, due to the accepted positive correlation between the ability to take another's perspective and responding to others' emotions with appropriate prosocial behavior.