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Mindfulness Practices in Education: Montessori's Approach

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Abstract

Mindfulness training has had salutary effects with adult populations and it is seen as a potentially helpful to children's development. How to implement mindfulness practices with young children is not yet clear; some meditation practices, like sitting still for long periods with internally-self-regulated focused attention, seem developmentally inappropriate. Montessori schooling is a 100-year-old system that naturally incorporates practices that align with mindfulness and are suited to very young children. Here I describe how several aspects of Montessori education, including privileging concentrated attention, attending to sensory experience, and engaging in practical work, parallel mindfulness practices. These aspects might be responsible for some of the socio-emotional and executive function benefits that have been associated with Montessori education, and they could be adapted to conventional classroom methods.

Key Words: Education, Mindfulness Practices, Montessori, Attention, Concentration

Introduction

Recent years have seen an increase in research incorporating mindfulness practices in education with the aim of improving children's well-being. Mindfulness is a quality of focused attention on the present moment accompanied by a non-judgmental stance; its "systematic cultivation [...] has been called the heart of Buddhist meditation" (Kabat-Zinn, 1990, p. 12) although it need not be accompanied by subscription to Buddhism or any other belief system. Mindfulness interventions with adults are clearly related to well-being (Brown, Ryan, & Creswell, 2007); by contrast, lack of attention on the present, or mind-wandering, is associated with less happiness (Killingsworth & Gilbert, 2010). Whereas bringing standard yoga and meditation practices to high schools and even middle schools appears to have positive outcomes for students (Britton et al., 2010; Broderick, Khalsa, Greenberg, Reichl, & Kabat-Zinn, 2010; Mendelson et al., 2010), research with very young children is in the early stages and is challenged by the issue of age-appropriate practices (Burke, 2010; Thompson & Gauntlett-Gilbert, 2008). For example, one successful pilot clinical intervention with anxious 7- to 8-year-olds found that 3 to 5 minutes of sitting focusing on the breath was age-appropriate (Semple, Reid, & Miller, 2005); how long might be appropriate for preschoolers? Interestingly, in Tibetan monasteries in the north of India, formal meditation training does not begin until ages 17 or 18 (Tsoknyi & Zajonc, 2010).

One place to look for approaches to helping even younger children to be mindful is Montessori education. Montessori education includes many practices and values whose goals and structures are consistent with mindfulness (Hanh, 1999; Kabat-Zinn, 1990). Montessori education was initiated over 100 years ago by Maria Montessori, one of the first women physicians in Italy (Povell, 2009). Dr. Montessori used materials stressing sensory discrimination to improve the cognitive achievements of children with mental retardation, which led to development of a full activity-based educational program for children from birth through age 12; development of the adolescent program was ongoing when she died in 1952. Although Montessori education has very positive impacts on school achievement (Dohrmann, Nishida, Gartner, Lipsky, & Grimm, 2007; Lillard & Else-Quest, 2006), it is fundamentally aimed at the development of the whole person (Montessori, 1932/1992). Its emphasis on deep concentration, integration of mind with body, practical work, and specific exercises like "The Silence" and "Walking on the Line" all echo mindfulness practices. These as well as other points of similarity in mindfulness and Montessori practices and values are discussed below, followed by a discussion of parallel outcomes.

Deep Concentration

In both Montessori education and mindfulness practice, concentrated attention is central (Hanh, 1999; Lillard, 2005). In Buddhist practice, meditation is a means to mindfulness. One meditates by focusing one's thoughts on a single idea or experience like the breath, and this builds the capacity for focused attention (Jha, Krompinger, & Baime, 2007). Although trained by meditation, concentrated attention is not confined to meditation but is to be applied throughout life, to listening and to eating, to every act and movement. Hahn (2001/2009) recommends that, "When you eat an orange, [you] try to practice concentration" (p. 79) because "Joy and happiness are born of concentration" (p. 770).

Concentration is also highly valued in the Montessori classroom. Dr. Montessori believed concentration led to a psychologically healthy state she called "normalization"—a term she borrowed from Anthropology that essentially meant "being a contributing member of society" (Shaefer Zener, 2006) but which also meant that children were constructive and kind in their behavior. Further, she believed that this state is the most important outcome of focused work (Montessori, 1967). Dr. Montessori described the event that brought her to this realization: a child was so deeply engrossed in her work (placing 10 graduated cylinders in their correct holes) that her chair was lifted up in the air, and the other children (at Dr. Montessori's direction, as an experiment) danced and sang around her

without breaking her concentration (Montessori, 1912/1965). Once children have begun to concentrate on work, according to Dr. Montessori, they become “completely transformed ... calmer, more intelligent, and more expansive”, bringing out “extraordinary spiritual qualities” (Montessori, 1917/1965, p. 68). “After this phenomenon of concentration the children are really ‘new’ children. It is as though a connection has been made with an inner power...and this brings about the construction of the personality” (Montessori, 1989a, p. 21). Children who have come to concentrate are said to behave better, no longer “prey to all their little naughtinesses” (Montessori, 1989a, p. 16).

To support the development of deep and sustained concentration, Montessori education has 3-hour work periods during which a child can pursue a single line of self-focused work. The goal is full absorption. In contrast, conventional schooling is typically organized around shorter periods of work focusing on the external stimulus of the teacher (NICHD NECCR, 2002). For example, in elementary school there might be a 40-minute math lesson when the teacher stands at the board, first going over the previous night’s homework then instructing children in a new math procedure (Greenwood, Delquadri, & Hall, 1989; Hiebert & Wearne, 1993; Stigler, Gallimore, & Hiebert, 2000). In kindergarten classrooms activities might change every 10-15 minutes (e.g., http://users.stargate.net/~cokids/Classroom_Schedules.html). Attention spans and the ability to control one’s attention increase with age (Posner & Rothbart, 2007) as the prefrontal cortex develops (Diamond & Amso, 2008). Attention is trainable in children (Rueda, Rothbart, McCandliss, Saccomanno, & Posner, 2005) and certain school experiences might serve to provide such training (Diamond, Barnett, Thomas, & Munro, 2007). Having longer work periods focused on interesting, absorbing work is consistent with the mindfulness practice of training the attention, and observation of good Montessori classrooms suggests that when the work is absorbing, challenging, and self-directed, young children do engage in deep and sustained concentration for long periods (Montessori, 1917/1965).

Grounding the Mind in Sensorimotor Experience

Mindfulness training involves particular attention to sensory experience. One mindfulness exercise, for example, is to fully experience eating a raisin or some other food, considering its texture and shape and color, how it feels in the mouth, how it tastes on different receptors on various parts of the tongue, and so on (Kabat-Zinn, 1990). Attention to all sensory experiences—the sounds of birds, the feeling of one’s chair, the color of a flower—is emphasized. Attention to motor movement, from focusing on how one walks in walking meditation to body flexibility in yoga to one’s movements in activities of daily life, is also prominent (Kabat-Zinn, 1990). The sensory and motor systems connect the mind and the body, taking sensory information in from the environment and executing motor acts that change one’s position in the environment and the environment itself. Thus when one attends closely to sensory and motor experiences, one integrates body and mind. Hanh (2001/2009) writes, “Our motto is: Body and mind together” (p. 43). Psychology is also increasingly acknowledging that bodily experiences influence cognition and vice-versa (Glenberg, 1999; Niedenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2005).

Montessori education begins with grounding in sensory experience via motor movement. Three-year-olds learn to make fine distinctions between different smells, sounds, tastes, colors, textures, and so on, manually pairing those whose sensory qualities match. For example, Primary (3- to 6-year-old) classrooms contain sets of musical bells, eventually used to make music, but initially used to train the ear to distinguish sounds. The teacher will even set the various bells around the room, and the child needs to pair up the ones that match by moving around the classroom, playing each one, carefully attending to its sound and holding that sound in mind while moving to a different bell to play its sound. In addition to establishing sensorial focus, this exercises working memory (attention capacity). Montessori also has tasting and smelling exercises, where a child pairs objects that taste or smell the same, often while the child is blindfolded. Another Montessori activity that involves attention to

sensory and motor experience is “The Silence Game”. The teacher chimes a bell and the entire class falls silent and listens, with the aim of becoming fully aware of their surroundings. When the silence is broken, children can discuss what they experienced, in particular what they heard. Dr. Montessori noted that young children “*love silence to an extraordinary degree*” (Montessori, 1989a, p. 53; italics in original). “All those who are on a higher spiritual plane [...] have felt a need for silence” (p. 57). In addition, Dr. Montessori noted that once Silence lessons were instituted in classrooms, children became more careful in all their actions, and even “became more kind” (Montessori, 1989b, p. 81).

The attention to sensorimotor experience in Montessori education extends to the care Montessori children are asked to take in how they move in and interact with the environment. The Montessori curriculum includes “Lessons of Grace and Courtesy,” in which one attends to one’s behaviors and their effects on others. Children are given lessons in how to walk carefully around the room, not stepping on others’ workspace, and how to carefully push in a chair so it is straight and even and not in others’ way. “Every exercise involving movement where mistakes can be corrected ... is of great assistance to a child.... Our children become agile and alert by learning how to walk around various objects without bumping into them” (Montessori, 1966, p. 124-5). In a good Montessori classroom, children are asked to be mindful of their every action and how it might affect others. “Walking on the line” is a specific Montessori game that resembles walking meditation: the child carefully places one foot in front of the other, exactly on a circular line. Children attend to the feeling of placing the foot and moving their weight from one leg to the other, learning to walk mindfully and in balance. “The attention of the child is centered, concentrated, upon this line.... This exercise also shapes the personality” (Montessori, 1989b, p. 65).

Children in Montessori classrooms often get their work on trays that must be carried carefully and parallel to the floor or the contents will slip. This requires attention to how the tray looks and feels in one’s hands. Once they arrive at their work place, children need to carefully set up their materials as the teacher has shown them to do. Each object has a place and method of use, like the objects in a Japanese tea ceremony. In addition, children often do their work on rugs, which are kept rolled up in a container in the classroom. When a child wants to work on a rug, he or she takes one out, finds an appropriate place on the floor for it—where there is room, and outside of pedestrian channels—and unrolls it. Then the child walks—not skips or runs, which can disrupt others—and gets the work. The child returns to the rug and sets down the materials, then carefully sets them up and carries out the work. When finished, the child carefully replaces the objects in their correct positions on the tray and returns the tray to the shelf, lining its edge up with the edge of the shelf, and then goes back to roll up the rug. Rugs are to be rolled tightly, with attention to evenness—just as one might carefully roll up the yoga mat. All a child’s actions in a Montessori classroom are thus to be carried out with attention to the body and the objects in the environment.

Mindfulness practice incorporates this same level of care regarding movement. For example, Hanh (2001/2009) describes an incident from his days as a novice monk, when his teacher asked him to do something and in his excitement he went out the door mindlessly. The teacher called him back, and he knew it was so he could close the door “with 100% of my being... Since that day, I have known how to close the door behind me” (p. 79). Kabat-Zinn (1994, pp. 201-2) discusses using care in going up the stairs, with full awareness of the body’s experience in the moment.

In conventional schools, in contrast, activities highlighting attention to sensory experiences and movements are not typically part of the curriculum, except in “specials” like art, music, and physical education or sports. By first grade, most of the child’s school day is spent sitting in chairs listening to the teacher’s words (Hamre & Pianta, 2007). Even if children are in activity-based classrooms, specific attention to how one moves and what one senses, as goals in and of themselves, is not a key part of the typical early school curriculum, which focuses on literacy, math, science, social science, and art (Chien et al., 2010; NICHD ECCRN, 2002). Montessori education includes all these areas but incorporates

movement throughout and gives equal prominence to Sensorial education and “Exercises of Practical Life” (Montessori, 1989b).

The Practical Work of Life

Closely linked to grounding in sensorimotor experience is attention to the functional activities needed to sustain everyday life. A Zen proverb states that one should chop wood and carry water, before and after enlightenment, and Kabat-Zinn suggests that one “attempt to bring moment-to-moment attention to the tasks, experiences, and encounters of ordinary living, such as setting the table, eating, washing the dishes, doing the laundry” (Kabat-Zinn, 1990, p. 134) and so on.

An emphasis on finding meaning in everyday activities that sustain life is seen in Montessori education as well, where children from a very young age engage in the “Exercises of Practical Life” (Montessori, 1989b). A budding toddler can carry his or her food to the table, and clean the table after clearing dishes. In the Primary classroom, young children become absorbed in scrubbing furniture, polishing shoes and brass, and arranging flowers. Specific organized steps are followed in carrying out each of these activities. The Montessori adolescent programs often include hard work on farms and nature preserves, and as part of community service work. Dr. Montessori observed that, “There is a strict relationship between manual labor and deep concentration of the spirit” (Montessori, 1956, p. 71) Practical activities are fundamental in Montessori education and children can engage in them and see their meaning from a very young age. The child needs “activity concentrated on some task that requires movement of the hands guided by the intellect” (Montessori, 1966, p. 138). Learning to polish a shoe, for example, a child carries out a careful sequence of steps, knowing the goal—the shinier shoe that he or she will really wear—and seeing how each step serves this eventual goal. When society is agriculture-based, probably many more of children’s daily activities have this clear connection between an action and a practical, cognized goal to which young children can relate, connecting body and mind. It is much more difficult for a young watching an adult typing at a computer to grasp the practical end: the abstractions underlying journal publications, grant submissions, financial spreadsheets, or stock purchases are beyond their intellectual capacities. The activities of practical life in Montessori education are thought especially important because they provide a functional (“important to my life today”) goal to which a child can relate, and a series of bodily movements—guided by the mind and attentively engaged with—that the child can use to get there.

Conventional schooling has little of this. Instead children are steeped in abstract mental pursuits or what is provided as relief from them, a recess (Pellegrini & Smith, 1993), with little attention to how body and mind can work together to pursue practical aims. In most American schools children do not engage in activities to sustain daily functioning—working in the cafeteria to prepare food or do dishes, sweeping the hall, and so on, although in Asia such practices are common (Lewis, 1995; Stevenson, Lee, Chen, & Stigler, 1990). Instead, conventionally-schooled children are told it is important to listen so they can do well on a test so that they eventually can get a degree that might help them get a job so they can support themselves--distant goals that can lack tangible meaning even for adolescents (Allen & Allen, 2009).

Other Points of Similarity

Three other points of similarity across Montessori education and mindfulness practices are an emphasis on simplicity, an avoidance of judgment, and grounding in stories. An additional interesting intersection lies in the training of Montessori teachers.

Simplicity. In mindfulness practices and Montessori education alike, there is a value on simplicity (Kabat-Zinn, 1994). Mindfulness practice is fundamentally simple: focus on the breath. Pay attention. Be aware. A meditation retreat is an exercise in simplicity: do yoga, sit, eat, walk, sit, do yoga, sit, eat, sit, and so on. Buddhist texts repeat the same material again and again. Through repetition of simple yet profound exercises, one is expected to reach higher levels of engagement and understanding.

Montessori also uses repetition within simple frameworks to bring about higher levels of understanding. The Montessori classroom is uncluttered and pristine, with only as much material as the children need to further their development. “Overabundance debilitates and retards progress” (Montessori, 1917/1965, p. 79). Unused materials are removed, or rotated out until there is a need for them. For the most part, there is only one set of material for each type of work (Montessori, 1989a)—one Pink Tower composed of 10 cubes, one set of 12 Metal Insets, one Binomial Cube, one set of material for Flower Arranging, and so on.

Nonjudgment. To be mindful is to be non-judgmental: one is to notice, but not make good-bad judgments. “Mindfulness is cultivated by assuring the stance of an impartial witness to your own experience. To do this requires that you become aware of the constant stream of judging...and learn to step back from it” (Kabat-Zinn, 1990, p. 33). Meanwhile, one needs to learn to “trust in your intuition and your own authority” (p. 36). Yet in conventional schooling we train children that teachers are the judges, and will reinforce their judgments with grades, gold stars, and demerits. A child’s own sense of authority is rarely paramount in this setting; rather they are subjected again and again to adult judgment.

Montessori education avoids extrinsic authority judgments in many ways. First, it uses self-correcting materials. A child who needs to match 20 sensory objects into 10 pairs, for example, will typically notice if he or she made an error because she will reach the last two and discover they do not match. When the errors are not noticed, the assumption is that through repetition, children will come to recognize many of their mistakes and self-correct. When that’s not the case, the teacher will re-present a material—not by telling a child he or she is wrong, but rather by simply gently representing how to use the material. In these ways a Montessori child can avoid feeling judged by adults. Learning takes place within the individual through concentrated interaction with interesting materials; the child becomes his or her own authority. Children do continually make judgments as part of the work—which piece of sandpaper is more rough or smooth, for example—but they are not repeatedly subjected to a teacher assigning grades.

Learning from Stories. Another point of similarity between Montessori education and mindfulness is the use of stories. Buddhism is based in tales—monks tend to educate with parables, tales of what happened to the Buddha or in their own lives that can instruct us. Stories are a powerful way for humans to learn, as we tend to represent experiences as narratives (Bruner, 1990). Montessori education, particularly at the Elementary level, also bases learning in stories. The underlying structure of the Elementary curriculum is actually 5 Great Stories: The birth of the universe, the beginning of life on earth, the beginning of humankind, and the invention of symbols and math. At five points in the first few weeks of each school year, the teacher seats all the class in a circle for these stories, and tells one of these stories in dramatic style, replete with props (for example, there is often an explosion in conjunction with the Big Bang in the first story). These core stories are followed by several other narratives associated with 5 core areas of the curriculum (although the interconnection among the different areas is a key component of Montessori education). Montessori’s elementary curriculum is called “Cosmic Education” and its main underlying point is that everything is interconnected. “To teach details is to bring confusion; to establish the relationship between things is to bring knowledge” (Montessori, 1948/1976, p. 94). For example, the invention of the Pythagorean theorem might be detailed in a story about Pythagoras on vacation going down the Nile, watching the rope-stretchers redraw property lines after a flood. This connects math, history, geography, and language. In Buddhism as well, stories are repeatedly used to help the students understand, and there is also an emphasis on the interconnectedness of all things—the interconnection of life and death, our own interconnections with all people and things (Sogyal, 1992).

Dr. Montessori might have been directly influenced by eastern philosophical traditions when creating the Elementary curriculum, since she designed much of the Elementary curriculum during her

years in India, where she was establishing a training course when WWII broke out. Because she was unable to return to Europe during the war, she had an extended and productive 7-year-stay in India. **Teacher Training.** As a final point, in Montessori education teachers are asked to examine their inner selves, reminiscent of mindfulness training. They are to become aware of their own psychological “issues,” so they can keep them aside and focus on the child’s needs, without allowing their own unsatisfied desires to interfere. “A teacher must prepare himself interiorly by systematically studying himself... A good teacher does not have to be entirely free from faults and weaknesses [but should know what they are]” (Montessori, 1966, p. 149). The attitude Montessori counseled teachers to have towards the children bespeaks “lovingkindness”—a basic precept of mindfulness (Salzberg, 2004). “A teacher ... [must be] ready to be there whenever she is called in order to attest to her love and confidence. To be always there--that is the point” (Montessori, 1956, p. 76). In addition to being always there and always loving, Montessori teachers are asked to be very careful observers of children, tuned in and aware of when a given child would be ready for the next lesson. This Dr. Montessori believed was the most fundamental quality of a good teacher (1917/1965, p. 130).

In order to help Montessori teachers reach a point in their own development when they can serve children in these ways, their training involves an intensive full academic year with a deeply experienced teacher-trainer (at least as implemented by the Association Montessori Internationale which Dr. Montessori founded to carry on her work). These teacher-trainers have spent at least 4 years as apprentice trainers, after at least 5 years as Montessori teachers and at least one in their own training, thus they are themselves very deeply grounded in Montessori education. In my own Montessori teacher training every morning for 30 minutes we lay on the floor in a darkened room and listened to Pachelbel’s Canon while the trainer guided us through a relaxation. In all training courses the trainer also observes emerging teachers working with children, and discusses their interactions. Thus Montessori teachers are expected to be transformed as people in their training to become teachers, in ways that are akin to the changes brought on by engaging in mindfulness practices (Brown et al., 2007).

Do these elements of Montessori schooling translate in to outcomes similar to those seen in Mindfulness research? The next section explores some parallels.

Outcomes Research

The research on outcomes of mindfulness practices in adults is burgeoning, and there is a growing literature on the outcomes in children and adolescents. Research on the outcomes of children in Montessori programs is much more limited. Here I note parallels in the outcomes in two areas (attention and social behavior/knowledge) where they exist, but with an important caveat: noting parallels across the program outcomes does not mean that the outcomes necessarily stem from the same source. Although Montessori education includes practices that bear similarity to mindfulness ones, Montessori education also includes practices that bear no similarity, for example 3-year age groupings, and allowing children free choice in their activities. These features of the program might be important sources of outcomes. Because Montessori is a whole system, one cannot remove aspects to test the impact of parts. Thus these points of similarity in outcomes are offered speculatively: in mindfulness interventions using randomly assigned groups we can be fairly sure that it was the mindfulness intervention that caused the change, but with Montessori education outcomes, other aspects of the program could be necessary to the found outcomes.

First I will describe the methods used in the four high quality studies of Montessori outcomes with which I am familiar. I consider these high quality because they 1) used randomly-assigned samples or attempted to match samples and 2) they used high quality Montessori programs (“Montessori” is not a trademarked term, and there are many schools that use the label but do not follow the practices described in her books very closely).

There are 4 quality Montessori studies whose outcomes parallel those in mindfulness

intervention research. Two used an experience sampling method with middle school students who were matched with middle school students from conventional schools. One paper focused on the level of engaged interest (Rathunde & Csikszentmihalyi, 2005a) and the other on social relationships and time use in school (Rathunde & Csikszentmihalyi, 2005b). A third study compared children at ages 5 and 12 whose parents had entered them in a random lottery to go to a public city Montessori school when they were 2-3 years of age (Lillard & Else-Quest, 2006). Half of the children had been admitted to the Montessori, and the other half was enrolled at other mostly public schools in the district. Children were tested on a variety of social and cognitive outcomes. A fourth study compared 2- to 6-year-old children in classic Montessori classrooms (those following Dr. Montessori's program very strictly) with children in supplemented Montessori and conventional classrooms (Lillard, submitted). Income, ethnicity, and parent education was the same across classrooms and the conventional schools were ones that Montessori parents most often said they would send their children to were Montessori not available. A range of social and cognitive outcomes was tested.

Attention. Children randomly assigned to Montessori primary classrooms in which they have 3-hour work periods have been shown to have better executive function than children who lost the Montessori lottery and instead went to other schools (Lillard & Else-Quest, 2006). In addition, children in classic Montessori classrooms show significantly greater increases in executive function over the course of the school year than do children in conventional or supplemented classrooms (Lillard, submitted). In addition, Montessori middle school students report feeling significantly "greater affect, potency (i.e., feeling energetic), intrinsic motivation, flow experience, and undivided interest (i.e., the combination of intrinsic motivation and high salience or importance)" (p. 341) while doing schoolwork than do matched students in conventional middle schools (Rathunde & Csikszentmihalyi, 2005a). These findings of improved attention are paralleled in mindfulness research. Even a short term course of meditation training improves attention skills (Jha et al., 2007; Tang, Ma, & Posner, 2007) and three months of training was sufficient to improve performance on a dichotic listening task and show underlying changes to neural networks involved (Lutz et al., 2009). The attentional networks of long-term meditators (over 44,000 hours) are especially efficient (Brefczynski-Lewis, Lutz, Schaefer, Levinson, & Davidson, 2007). Mindfulness interventions benefit focused attention over and above good control procedures like relaxation training (Jain et al., 2007).

Social Outcomes. Mindfulness training programs encourage lovingkindness and empathy (Kabat-Zinn, 1990), which would seem likely to improve relationships. Intervention studies with medical professionals have shown social relationship benefits including increased empathy (Beddoe & Murphy, 2004; Krasner et al., 2009), and therapy with nondistressed couples has been shown to improve relationship quality (Carson, Carson, Gil, & Baucom, 2004). Brown and Ryan (2003) found a relationship between degree of mindfulness and the "relatedness" subscale of eudaimonic well-being. Such findings are also paralleled in Montessori research. For example, Montessori middle school children are more likely than matched controls to claim their schoolmates are also their friends (Rathunde & Csikszentmihalyi, 2005b), and in the random-lottery-based study 12-year-old Montessori students were more likely to report trust in their classmates and to choose the most positive option in social problem solving tests. Montessori 5-year-olds were more likely to engage in positive shared peer play and less likely to engage in ambiguous rough-and-tumble play on the playground, were more likely to choose a more advanced form of moral reasoning in a social problem-solving task, and performed better on theory of mind tasks (Lillard & Else-Quest, 2006). The latter two results also held for children in more classic Montessori classrooms (playground testing was not conducted) (Lillard, submitted).

Thus there are parallels in social and attention-related outcomes for participants in Montessori classrooms and participants in mindfulness practices. Whether the parallel outcomes stem from parallels in activities in the two realms is not known.

Summary

Many points of similarity have been discussed here between mindfulness and Montessori education, such that one might even view Montessori education as a form of mindfulness education. In both programs, there is an emphasis on deep concentration as a source of personal development leading to balance and joy, and by extension to healthy relationships with other people and the environment. In both, the close connection between body and mind is respected; Montessori's sensorial exercises are a unique educational format in which this connection is emphasized, but the connection runs throughout the curriculum, as the educational program involves hands-on materials in which the body and mind work together to solve interesting problems. The exercises of Practical Life are also an extension of this, and resonate with the call to chop wood and carry water. The self-grounding effects of functional activities are recognized in Montessori and mindfulness. Each encourages attention to the body and its every movement, to executing every act with care and precision. Several other points of similarity were also raised: the use of parables, the value of simplicity, and the absence of judgment. An additional point of interest is the mindfulness inherent in Montessori teacher training programs.

Some educators today are interested in how we can incorporate mindfulness practices in education, and Montessori education offers several ideas to consider. Very young children can and will focus attentively on meaningful work that incorporates body and mind. They also will be mindful of their actions when shown how to be so by attentive and loving adults. As education's goals grow beyond having more children circle more right answers on multiple-choice tests, Montessori education might provide some guidance for an alternative route that can nurture wiser and kinder and also knowledgeable human beings—a far more important goal that is perfectly compatible with doing well on those tests.

One of the most striking findings in studies of the impact of school-based mindfulness programs like sitting meditation and yoga concerned the control groups. Namely, on measures relating to psychological health, across the course of the year, while children in mindfulness programs tended to improve, those in control groups clearly declined (Broderick et al., 2010). As Eccles has pointed out, our conventional schools have a poor person-environment fit (Eccles et al., 1993), and mindfulness interventions help ameliorate these ill effects. Incorporating practices from other school programs that are consistent with and might be another form of mindfulness intervention is worth considering for American education.

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