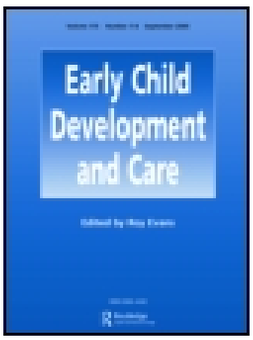

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# Montessori as an alternative early childhood education

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**ABSTRACT**

Montessori education was developed over 100 years ago, and persists as a marginal 'niche reform' of the standard model. Here I discuss two unresolved dichotomies in early childhood education – the tension between work and play, and between structure and freedom. I explain how Montessori collapses and thereby resolves the dichotomies, and does so in a contemporary theoretical frame – one that is dynamical rather than linear. I next describe the origins and functioning of Montessori preschool environments, outcomes from the most methodologically sound studies to date, and impediments to Montessori's more widespread adoption. I also show how Montessori is a culturally responsive pedagogy, and conclude by return to the dichotomies and how Montessori makes sense for the modern era.

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Early childhood education; Montessori; culturally responsive pedagogy

## Introduction

Maria Montessori (1870–1952) was a physician turned educator whose influence on early childhood education has been profound, and yet she is rarely mentioned in education or psychology courses today, and the system she developed is a marginalized 'niche reform' (Cohen & Mehta, 2017; Whitescarver & Cossentino, 2008) implemented in just 500 of the nation's 100,000 public schools. In this article I describe two current dichotomies and two theoretical approaches in development and education, and situate Montessori in each. The theoretical approaches are linear versus dynamical systems, and the dichotomies are reflected in the tension between structure and freedom, and the (often parallel) tension between work (*aka* academics) and play. I then review Montessori's history, briefly describe its early childhood classroom model, and succinctly consider the most rigorous research on its outcomes. Included here is discussion of how Montessori is a culturally responsive pedagogy, relevant to addressing social equity. I next address why Montessori is not more prevalent today, and conclude with consideration of the dichotomies.

Early childhood education has vacillated between work/structure on the one hand, and play/freedom on the other. These dichotomies are situated within two opposing theoretical approaches: linear and systems. Montessori is a contemporary alternative education, as it abolishes the two dichotomies, and exists squarely in the more modern systems approach.

### *The work-play tension*

School traditionally was characterized as work, and did not begin until after age 6, as that is the age when children become developmentally able to tolerate conventional school methods of listening to a teacher to learn (Rogoff, Sellers, Pirrotta, Fox, & White, 1975). Children were taught to read and write so they could be read the Bible, to serve as clergy and (in Protestant religions) for individual

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moral education (Tyack, 1974). The educational technique was to sit children down, and have a teacher tell them how to interpret the symbolic phonetic code. Children memorized that code, and then written texts of code, and recited texts to show they had learned.

Although we do learn by being told things (Harris, 2012), this is not the primary way young children naturally learn (Rogoff, Callanan, Gutiérrez, & Erickson, 2016). They naturally learn by playing, by trying to *do* things. Sitting still, listening, and memorizing is *work*; and yet this conventional school technique spread to other subjects and became the standard technique of school. Using this method, particularly with children under 6, is considered developmentally inappropriate, and yet it is the obvious way to teach academic content, and so when there is pressure for younger children to apprehend academic content, the sit-and-listen, or teacher-text-centered model, is typically used. Thus, as the standardized tests of No Child Left Behind (NCLB) and other legislation have become supremely important, teaching practices with younger children have revolved to this model. As compared to 1998, in 2010 twice as many kindergarten teachers (32%) reported that their children spent more than 3 h/day in whole-class instruction, and fewer than half as many said that children had an hour or more for child-selected activities; the change was particularly marked for teachers of lower income and minority children (Bassok, Latham, & Rorem, 2016). Thus, on one pole is school as work, characterized by the traditional method of a teacher telling a whole class information to memorize and recite.

Before the passage of NCLB, preschool was more in the play tradition, at the opposite pole. Children naturally play: They explore, they experiment, they try things different ways and discover how things work. They also make things up, pretending one object is another, or that they are different people. From ages 3 to 5 the impulse to do this is particularly strong, and children engage in social pretend play scenarios with friends or even imaginary friends. Early childhood education of the non-academic sort has held that since this is what children naturally do, it must be necessary to their development, and preschools should be places that foster pretend play. This tradition was firmly established by Froebel, whose German kindergartens formed a model for others around the world (Beatty, 1995). Froebel developed a whole set of gifts – 12 objects to be presented in specified ways to engage children in play; a set of occupations, like painting; and a provision of songs and plays, all in the interest of promoting whole-child development, exercising the senses, growing the mind, and strengthening the body and moral sense (Froebel, 1887). This traditional view of preschool as a place to play and the newer view that we need to begin to prepare children for standardized tests have created one tension in early childhood education, between work and play (Hirsh-Pasek, Golinkoff, Berk, & Singer, 2009).

For Montessori, however, work and play are not at opposite ends of the spectrum – rather they go together. In typical schools, they 'make learning difficult for children by trying to teach them by means of grown-up methods; the natural and happy way for children to learn, however, is by touching and moving solid objects, not by trying to memorize rules' (Montessori, 2017b, p. 18). In her system of education, children play with hands on materials in order to learn academic content. In this sense, Montessori education is play.

Because in standard kindergarten classroom, play often means fantasy or pretend play, an interesting issue arises regarding reality versus fantasy. Montessori classrooms originally (1907) offered fantasy materials like dollhouses, but children chose not to use them, preferring for example to really clean the classroom, prepare a meal, or read instead of pretending to clean or cook in the dollhouse; Montessori also saw it as more meaningful to prepare a meal that would really be eaten as opposed to doing so for pretend (Montessori, 2017a); in this sense, 'children would rather work than play' (Montessori, 2017b, p. 19). For parsimony, she eventually removed the unused toys, and was thereafter criticized for not offering pretend play (Elkind, 1983; Soundy, 2009). Yet she criticized others for offering mainly fantasy, a criticism that should be taken in its historical context. In the Victorian era, prominent fantasies offered to children included a Sand Man and a Santa Claus who punished bad children, and Montessori believed it morally wrong to threaten trusting children with incorrect information (Montessori, 1989). She also noticed some children who seemed unable to

operate in the real world because they were obsessed with fantasies, and she saw this as developmentally problematic (Montessori, 1966). For these three reasons, pretend play is not central to Montessori. Children sometimes play with the materials, and sometimes teachers allow them to, but other times teachers stop it. Montessori preschool classrooms are thus sometimes seen as falling at the work end of the work-play dichotomy. And yet, if the features of play are not only fantasy but include freedom to choose one's activities and social partners, engaging with the world with one's body, experimenting with different materials to see how different actions have different results, and being responsible for and in control of one's own mind and attention, then Montessori is very much an environment of play. This play is called 'work' in a Montessori classroom, in the sense of 'play is the child's work,' (Montessori, 2017a) and it includes learning academic content. The play-work dichotomy therefore collapses in Montessori, if one considers elements of play exclusive of fantasy.

### *Structure versus freedom*

Coincident with the work-play tension in childhood education is the tension between structure and freedom, which are also at opposite poles in the conventional approach. Conventional school as originally conceived is very structured; the teacher sets the agenda, and children are taken through a schedule and curriculum that is specified from minute to hour to school year. In highly structured classrooms, children typically sit in desks, facing the teacher, listening or reading from designated textbooks. At the other end of the dichotomy is freedom, an educational condition that Rousseau (1979) advised as did John Dewey (1923–2020). Even Froebel (1886), whose system was in many ways more structured, believed that children would develop well naturally if set free in a suitable environment. Today's discovery learning approaches follow this dictum. However, if one considers standardized tests to be the important outcome, then outcomes from such programmes are not as good as outcomes from more structured programmes (Chien et al., 2010).

Montessori collapses this dichotomy as well: Montessori education offers freedom within a highly organized structure. A classroom, a set of materials and ways to use those materials, and a code of acceptable behaviour form the structure, but within this, children are free to choose on a daily basis with what activities to engage, with whom, and for how long. By analogy to parenting styles (Baumrind, 1989), one might think of conventional school, with its tight structures and lack of freedom, as being more like authoritarian parents: Children are told what to do at each moment; discovery learning is entirely free, more like permissive parents; Montessori is more like authoritative parenting. There are strict rules and guidelines, within which children are free.

### *Linear versus systems thinking*

The final introductory concern, which can be considered a third dichotomy, concerns whether one approaches child development and education as a linear process or as a dynamical system. Education has typically taken a linear approach, steeped in behaviourism and the idea that knowledge is transmitted from teacher to student (Lascarides & Hinitz, 2000). Behaviourism and mass public schooling shared ascendancy in turn-of-the-twentieth-century America. The major behaviourist Edward Thorndike was a professor at Columbia Teacher's College, the pre-eminent teacher education institution of the era that trained the founding professors of schools of education across the nation during the 40 years of his professorship. Thorndike was very influential, and wrote many popular textbooks that reflect behaviourism (Jonich, 1962). For example, one reads, 'Learn this. Dime = 10 cents.' Thorndike saw education as forming bonds, and teachers were to use rewards when bonds were formed, and punishments when they were not. He paid little heed to context or individual differences; each child was a blank slate. Such stimulus-response approaches are linear, and they became the dominant theory of knowledge acquisition adopted in education in the first part of the 1900s.

Yet coincident with Thorndike, another major contributor to education was John Dewey. Dewey believed that children construct their own knowledge through activities in the environment, and his philosophy, though aimed at older children, was more compatible with the free and hands-on elements of Froebel's (Dewey, 1990). Constructivism lends itself naturally to systems rather than linear thinking, and is more clearly aligned with contemporary developmental theories. Dynamical systems self-organize; children construct themselves (Lewis, 2000). Piaget, whose theory of child development is arguably the most influential one, was a systems theorist, in that he understood that children's minds and bodies interact reciprocally, assimilating and accommodating the environment to create mental growth (Flavell, 1963; Van Geert, 2000). Piaget's early training was in biology, and he applied biological approaches to the study of knowledge construction. Constructivism meets each child where they are, appreciating that they have a biology, a background, an individual context. Constructivism has gradually become predominant in schools of education, but not in schools for children (Darling-Hammond, Flook, Cook-Harvey, Barron, & Osher, 2019; Dintersmith, 2018).

Perhaps this is because systems thinking is hard; linear thinking, simple cause and effect, is easier. Two contributors to the recent growth of systems thinking in developmental psychology have been advances in biology – for example, in epigenetics whereby we now can see how the environment actually influences the genome, which results in an organism that in turn influences the environment (Meaney, 2010) and advances in computing technology allowing ever more sophisticated models. The tension between a linear approach to early child development, in which children tack on new knowledge in response to environmental stimuli, and a systems approach, involving a back-and-forth in which mind and environment make each other up, has continued. Yet there are recent signs that systems thinking is ascendant in education (Darling-Hammond et al., 2019) as it has already become in developmental psychology (Overton, 2015).

Montessori was a systems thinker. Like Piaget (who attended at least one Montessori congress and was a President of the Swiss Montessori Society), her background was biological (in medicine), and she approached children with deep appreciation of the body and brain as physical entities responding to and with the environment.

In sum, Montessori was a modern theorist in the sense of approaching child development as a constructive enterprise, a reciprocal interaction between the child's biology and the environment at many levels. Montessori also collapses the tensions in two controversies in early education today – structure versus freedom, work versus play – because the work is playful, and a tight structure envelops the freedom.

## History of Montessori

Maria Montessori was born in Chiaravelle, Italy in 1870, and moved to Rome at age 5. She was an ambitious child, determined to get an engineering degree in school, which was atypical for an Italian girl at time. Later she chose medicine, and was one of the first women to graduate from the University of Rome's medical school (Trabalzini, 2011). She was concerned with women's rights, and with the plight of poor families crowding into tenement housing in Rome; she spoke at international conventions on such topics. Her medical career led her to atypically developing children, whom she perceived to be were starved of sensory stimulation. At the time, theories that cognition begins through developing the senses were popular, and thus it made sense for her to adopt this approach with the children. She also became intrigued by the work of Itard (famous today for his work with the Wild Boy of Aveyron) and his follower Seguin; she translated their texts from French to Italian, and copied some of the sensorial materials they had developed to use with atypical children for those with whom she worked. The results were extraordinary; children who had been given up on in the Italian system learned to read and write, and passed state exams intended for typically developing ones (Trabalzini, 2011).

The fact that neurologically impaired children would pass tests that were supposedly the pinnacle achievement of conventional schools led her to suspect that something was terribly wrong with how traditional schooling was done. She set her mind to studying it, sitting in on school classes, taking courses in anthropology, and thinking about alternative ways one might educate. In early 1907 she had opportunity to open her first school. It served children ages 2–6 only by chance. She wanted to work with school-aged children, thus children older than 6, but the Italian government would not approve. Some family friends had renovated tenement buildings near Termini station in Rome; the adult occupants of these buildings were day labourers, and children over 6 went to school. But younger children – ones deemed old enough to be left alone (no longer nursing, perhaps) but not old enough for school – were left alone in the building, and they were destructive. The owners gave Montessori a ground floor apartment to use as an experimental school, and suggested the janitor's daughter – who had no formal education – could be the teacher. Fifty children thus gathered each day, and she tried out her methods (Montessori, 2017a).

She was not allowed to furnish it with school furnishings (desks bolted to the floor) because she was not licensed to have a school. Therefore she furnished it as a house, and she had the then-unique idea (Elkind, 1983) to make all the furnishings sized appropriately for children. Another fortuitous occurence is that one day, when the teacher was late, the children asked a maintenance worker to let them into the apartment and to unlock the closet where the materials were kept. When the teacher arrived, the children were working with the materials without her. Montessori realized children could choose to do schoolwork on their own. She coupled this with her observation that babies begin to study talking adults' mouths shortly before they begin to speak, and deduced that children know what they need for their development; if an appropriate array of developmental aids were laid out around them, they would choose what was needed, in the same way that babies choose to look at mouths instead of eyes at that age–something developmental psychologists have recently noted, both in terms of this specific example (Lewkowicz & Hansen-Tift, 2012) and more generally (Kidd, Piantadosi, & Aslin, 2012, 2014). Her observations also led her to eliminate rewards. Initially she rewarded children for good behaviours, but she came to see that they liked learning for its own sake. She also noticed one day that a child became so deeply engrossed in a challenging exercise that the child seemed unaware of her surroundings, and she repeated the exercise (fitting ten graduated cylinders into ten matching holes) 40 or so times, and that afterwards the child seemed refreshed. This led Montessori to think both that children learn through repetition, and that deep concentration is developmentally important. Finally, she also perceived early that movement and cognition are bedfellows, that children's thinking comes out of their movement. This attribution is often credited to Piaget, but he wrote,

> generalizing her discoveries with unparalleled mastery, Mme Montessori … immediately applied to normal children what she had learned from backward ones: during its earliest stages the child learns more by action than through thought [, leading her to develop] a general method whose repercussions throughout the entire world have been incalculable. (Piaget, 1970, pp. 147–148).

## Portrait of a Montessori classroom for three- to six-year-olds

On entering a Montessori classroom for children ages 3–6, called a Children's House, people are often struck by the fact that it is quiet, and children are busy carrying out independent occupations. Some are engaged in practical activities, like washing up dishes after making biscuits (mixing the dough from raw ingredients, putting on sheets, and baking in a toaster oven), arranging flowers in vases which they set around the room, or polishing their own shoes at a table with a colour-coordinated shoe polishing kit arranged on a tray. Other children are seated in a semicircle around a teacher, who holds up small pink (for vowels) and blue (for consonants) wooden boards, each with a different letter on it, cut out of sandpaper and in cursive. The teacher holds up the letter and asks what it is, and children chime in with the sound it makes, like, 'buh' for the b. She then asks them for words that start with 'buh' and the children come up with a variety of words, bee,

ball, bottle, and so on. She also shows how to trace the sandpaper with one's finger in the same way one would write the letter. Children copy her motion, one by one. A child who is walking by watches with interest.

One child is carrying lengths of rods across the room; once he has carried all 10 from the shelf to the small rug he has rolled out, he lines them up shortest to longest in a game that will lead him into math. Two others are in front of a long chain of glass beads held together by wires laid out end to end on the floor, engaged in skip counting the beads by 6, laying markers at 6, 12, and 18 beads, and so on, up to 1000. A child is reading a book in the corner, and another is playing musical bells, quietly matching up ones that sound alike. Another child is wearing a blindfold and smelling the contents of 12 different bottles, pairing the ones that smell alike. Two children are putting together large wooden maps, one of Europe and another of Africa. They are discussing the countries as they trace and draw them on large sheets of paper, colour them in, and write their names on tickets that they glue in place over the country. A younger child sits and watches them with interest.

And so on – the classroom is a hub of self-chosen activities, and children interact with each other and the materials naturally; there is little need for adult direction or interference. This kind of work, with children choosing what to do, with whom, and when to stop and start, goes on for 2.5–3 h every morning and afternoon, with no interruptions. The teacher moves from one lesson to another, sometimes teaching a small group and sometimes an individual child; he or she will also spend a lot of time observing, sitting in a chair simply noting what children are doing, seeing how the class is functioning and getting ideas for what each child might need next in terms of lessons. The teacher keeps track of which child has received each lesson, and ensures that for the most part all the children get through the core set of lessons in the three years they spend in the classroom. A classroom for younger children (ages 0–3) will look similar, although of course the younger the children, the simpler the activities. Likewise, the Montessori approach is consistent with older children, continuing through high school and beyond.

For each age level of classroom (3–6, 6–9, and so on), a large set of materials was developed by Montessori and her collaborators to teach particular concepts. There is only one of each material so children learn to wait their turn. Montessori saw this as an important aspect of learning. There is typically one well-trained teacher for 25–35 children (in Montessori's day, and today in some countries, numbers were sometimes much larger.)

## Outcomes of Montessori education and its fit to social justice

Some of the first studies of Montessori education outcomes were done in Head Start classrooms using random assignment to curriculum (Karnes, Shewedel, & Williams, 1983; Miller & Bizzell, 1984; Miller & Dyer, 1975). Unfortunately the implementation of Montessori was deficient, as classrooms had only 4-year-olds, the teachers had little training, and the daily schedule included very little time Montessori free choice work time. Other studies from 1970s and 1980s were deficient methodologically, for example they compared children at school A with children at school B, sometimes not even ensuring similar demographic characteristics (White, Yussen, & Docherty, 1976; Yussen, Mathews, & Knight, 1980). More recently two lottery control studies were conducted in high fidelity public Montessori schools. The first (Lillard & Else-Quest, 2006) showed that compared to children who were waitlisted and went to other non-Montessori schools, 5-year-olds who were admitted at random into Montessori performed better on the Woodcock Johnson tests of Letter-Word, Word Attack, and Applied Problems, as well as a test of executive function (Head Toes Knees Shoulders) and tests of social understanding (False Belief) and social problem solving. They also were engaged in more positive and less ambiguous rough and tumble play on the playground, although they played with peers just as often. There were no differences in tests of Concept Formation, Following Directions, Picture Vocabulary, Delay of Gratification, or Liking School (which was at ceiling for both groups). The children were at a single high fidelity Montessori school in Milwaukee where 80% of children were of colour. But in addition to being at just one school (with 6 PreK

classrooms), this study was small – just 55 five-year-olds, tested just once during the school year. Although assignment was random, it is possible that pre-existing differences by chance caused the differences, not Montessori.

The second study (Lillard et al., 2017) improved on all of these weaknesses. Of 141 children, roughly half were admitted by lottery to one of two high fidelity public Montessori schools (11 classrooms) and half attended other business as usual schools. Because the Montessoris were magnet schools, the income range was broad, from no income to 200 K, and the samples were half White, half non-White. The two groups had similar demographics and performed equally in the fall of their first year of school (PK3), but by the end of K5, children in Montessori were performing better on academic achievement (pooled across Woodcock Johnson Letter-Word, Picture Vocabulary, and Applied Problems), the Theory of Mind scale, School Liking, Mastery Orientation, and, at age 4 only, Executive Function (Head Toes Knees Shoulders); the difference at 5 showed a similar effect size but only a trend towards significance. Children performed similarly on Social Problem Solving and Creativity. What was especially compelling in this study was the strength of the findings with lower income children. The lower income half of the sample that went to Montessori performed significantly worse than the higher income half at age 3, caught up to a degree by age 4, and was no longer significantly lower than higher income children in the study at age 5. By contrast, the lower income children at business as usual schools remained significantly poorer in performance throughout preschool.

These and other data suggest Montessori can address social justice. Montessori is philosophically aligned with the five tenets of culturally responsive pedagogy or CRP (Brown-Jeffy & Cooper, 2011), an approach to fair education (Ladson-Billings, 1995a). For example, Montessori's individual approach and high academic expectations (reading, writing, doing math with 4-digit numbers, knowing parts of speech and the countries on all continents, etc., by age 6) fits the first principle of CRP, equity and excellence in the provision of education. Second, CRP asks that teachers instruct and empower the whole child, attending to social-emotional needs and education as well. Montessori children are empowered to freely choose their activities, and the curriculum includes explicit lessons in social behaviour. In addition, freedom for interaction gives opportunities to develop social skills in a controlled environment. The third CRP principle is to embrace constructivism, and as noted Montessori is a constructivist education (Brooks & Brooks, 1999). For example, using the Brooks' formulation, children drive their own education, are free to work collaboratively, and work largely with hands on materials; the curriculum is viewed as an integrated whole, there are no tests or grades, and assessment is instead formative. Studies also suggest that Montessori features strong and positive relationships (Lillard & Else-Quest, 2006; Rathunde & Csikszentmihalyi, 2005), which is the fourth principle of CRP. This may stem from staying with a teacher and same-age classmates for 3 years, allowing strong relationships to develop; children one year older and younger are classmates for two years, and are met again as one moves up the classes. Since there are no grades, teachers are not in a position of marking the quality of children's work. Their focus is how to help each child develop. The fifth feature of CRP is respect for culture. Montessori classroom walls are typically curated with fine art from the children's culture, and photographs of cultural heroes and heroines, and the practical life exercises are ones that matter in a child's culture – shoe polishing in some places, mandala making in others. Children are taught to research how people around the world adapt to their different environments and circumstances in terms of food, shelter, clothing, and meeting social and spiritual needs.

## *Summary*

Over 110 years ago, Maria Montessori developed, through watching children, an enduring system of education that has been shown in well-designed studies using high fidelity public Montessori to cause better outcomes in children. The children in those studies were largely children of colour, and the Montessori system is well aligned with CRP principles that have been shown to constitute

good teaching for children of colour (and indeed, for all children) (Darling-Hammond et al., 2019; Ladson-Billings, 1995b). This begs the question of why Montessori has not been adopted wholesale into American preschools.

## Montessori and the mainstream

Montessori has remained a 'niche' reform (Cohen & Mehta, 2017), largely a private preschool model. Some of Montessori's ideas – child-sized furniture, free choice, specific materials for learning, hands on work, not using grades, teaching the whole child – have been accepted in many early childhood programmes, although recently mitigated as society demands more academics from young children (Bassok et al., 2016).

### *Reasons for rejection*

Given that high fidelity Montessori has good outcomes, why has it failed to gain more of a toehold in early childhood education? One reason is that poor exemplars of Montessori are prevalent (Daoust, 2004); although I know of no formal survey, based on observation I suggest there may be 10 poor or fair implementations of Montessori for every high fidelity one. This is because the term is not trademarked, so anyone can call their school Montessori. Many Montessori classrooms have untrained teachers. Even the trainings vary; many different organizations have spawned teacher training courses. Montessori started an organization, the Association Montessori Internationale (AMI), to carry on her work, and it has kept tight control of its own teacher training, but other programmes give the training in much less time and without a clear standard examination process for the teachers' trainers, much less the future teachers themselves.

Even when Montessori is implemented well, people often fail to understand it, and therefore walk away. For example, Arne Duncan (2018) recounted that when his family moved to Washington DC for him assume the post of US Secretary of Education, he wanted to enrol their son in a Montessori school, but the son was declined due to his lack of Montessori experience. From a typical kindergarten perspective, this is hard to fathom, but Montessori has a curriculum that tracks sensitive periods in development; a 5-year-old is past being interested in some formative activities to which 3- and 4-year-olds are exposed, and therefore will not flourish as well in a Montessori classroom as 5-year-olds who were in Montessori at 3 and 4. Similarly, it would be ill-advised to enrol in AP Calculus without precalculus background. Montessori schools often fail to adequately explain such peculiarities to parents, and the result is that people lose interest in Montessori.

Finally, Montessori lacks acceptance because of the issues raised in the introduction. The typical dichotomies people seek to locate a preschool on is work or play, and structure or freedom. Montessori can fail regardless of which end people endorse. It can seem too work-like because it lacks pretend play, or too play-like because it has free choice and no tests or grades. It can seem too structured because there is a specific way to use the materials, or too unstructured because of the free choice. Yet because it collapses these dichotomies, each of which has failed to satisfy and led to the current controversies over preschool education, Montessori could be more positively viewed. Outcomes studies suggest that children get a good early academic start in Montessori despite its being playful.

Montessori education is also current as a systems approach to education. Even the curriculum is dynamical, teaching children how everything is interconnected (Montessori, 1948–1976); each child takes what they need developmentally, at their own pace and time, and not always in the same order. Children construct themselves, not in response to extrinsic rewards, but out of an internal drive to develop. In this way too, Montessori education should be reconsidered.

Of course, even were Montessori's ideas and programme accepted as a best-practices available programme, widespread adoption would be very challenging. This is in part simply because change is hard. The conventional model is firmly fixed. Reforms that require major behavioural

changes on the part of staff are particularly difficult to enact (Kraft, 2020). The required teacher training sets a high bar for conversion of existing schools. However, when demand is strong, change occurs.

Maria Montessori made important contributions to our understanding of early childhood, in part by collapsing the usual dichotomies, and by adopting a systems perspective that arose naturally from her background in medicine, leading her to view the child as a multitiered organism continually adapting to a changing environment. Although her school model remains a niche reform, many of her ideas have come into the mainstream of child development. Others, like the fact that play and work, structure and freedom, can all co-exist, have yet to be incorporated in our typical preschool models.

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