

**Montessori:
The Science Behind
the Genius**

Angeline Stoll Lillard

OXFORD UNIVERSITY PRESS

MONTESORI



Maria Montessori, Barcelona, 1926. Photograph courtesy of the Archives of the Association Montessori Internationale.

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Photographs by An Vu

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For Bill, Chaney, and Jessica

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Preface



Twenty years ago, I was a Montessori skeptic. I had taken a Montessori teacher training course and was frustrated at not being able to discriminate scientifically supported ideas from mere opinion. I had met Montessori teachers who sometimes came across as more devoted to upholding their heroine than to learning about children. And I was convinced that while Montessori surely had its strengths, traditional and other forms of education surely had theirs too, and the best educational system would combine the strengths of each system.

When I embarked on graduate study in developmental psychology, I occasionally came across a study that happened to reiterate a major principle of Montessori, and I had seen enough of such studies by the time I had children to want them to be in a strong Montessori school if I could find one. (Not all Montessori schools would qualify, for reasons that will become clear in this book.) Having my children in a Montessori school led me to study Montessori practices more deeply, and I saw more convergences with research over time. The education director at my children's school, Trisha Thompson Willingham, asked me to write a column about these convergences for the school newsletter, and from that column this book was launched.

The delegates at Oxford University Press asked that I write a balanced assessment of Montessori, pointing out where the evidence is not supportive as well as where it is. I have done my best to do this, but there is a real

problem. Their assumption, like my original one, was that Montessori must have aspects that are supported by research, and aspects that are not. Yet her major ideas—that there is a close relationship between movement and cognition, that the best learning is active, that order is beneficial for children, and so on—are supported by a strong body of evidence in developmental psychology. Some of her main developmental ideas that did not take hold until later and are rarely attributed to her are now mainstream, such as that children go through sensitive periods in development, and that language is (in a sense) innate. None of the Montessori ideas that I would consider central have been “disproven.” Others are not researched. The most major idea that is not supported by the evidence is her negative view of pretend play, which I discuss at the end of chapter 5. Like Piaget and others of her time, Dr. Montessori saw adaptation to reality as the goal of development, and pretending as a frivolous expression of immature minds that were not adapting to reality. But there is another important point here: Dr. Montessori took her cue from children, observing them in her classrooms. She observed that when the children were offered toys alongside Montessori work, they chose the work and ignored the toys. They did not appear to be interested in pretending in the classroom. The reasons pretend play helps cognitive development may well be satisfied in other ways in Montessori classrooms. For example, in play and in Montessori, children get to choose what to do, when, and with whom.

It is this practical approach that explains why Dr. Montessori is less “debunkable” today than Piaget. Like Dr. Montessori, Jean Piaget made many brilliant observations of children, based on their interactions with stimuli he developed. Piaget’s aim through these observations was to explain the ontogenesis of intelligence, but for him theory came early, leaving him vulnerable to making observations that fit his theory. Dr. Montessori’s aim was instead practical: she sought to develop a system of education that worked with children, rather than against them. Dr. Montessori was not particularly interested in theory; she was a physician, concerned with treatments to aid health and well-being. Surely her personal views did sometimes get in the way of objective observation, but her major ideas about treatments that bring about more optimal learning and development, based on her empirical observations, are largely upheld by research today. If schooling were evidence-based, I think all schools would look a lot more like Montessori schools. Yet Montessori schooling can often feel uncomfortable to parents, and even to the teachers who employ the methods, because it is different from what we had as children. For psychology researchers, attitudes toward Montessori are mixed: some know enough to appreciate it, others misunderstood a small aspect and dismiss the entire approach. Very few know more than a smidgen about it.

In this book I try to make Montessori accessible to researchers, and I try to make psychology research accessible to parents and teachers. I hope the book will help readers better understand how people learn generally, as well as what happens in a Montessori classroom and why. I try to also point out Montessori ideas and issues that are unresolved in modern science and in need of more study. Empirical study should always be the deciding factor for how to best educate children, as it was for Dr. Montessori. Dr. Montessori described herself as an empiricist, but her methods, although acceptable during her time, are no longer the standard.

I write about Montessori education because that is the alternative system that I know. Others who know Steiner (Waldorf), Reggio Emilio, and other alternative systems of schooling will surely see points of similarity to and differences from Montessori education. Those with knowledge of other systems can evaluate how they fare in relation to research on human learning and development.

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also thank Peace Montessori School in Portland, Oregon, and the families who allowed these photographs to appear. Carol Dweck provided a review as well, and Susan Goldin-Meadow contributed useful comments for chapter 2. My mentor at Stanford University, John Flavell, gave thoughtful comments on the manuscript on top of many wonderful years of mentorship for which I am forever grateful. The University of Virginia library, one of the best libraries an academic could ever hope for, delivered hundreds of articles and books to my computer desktop or mailbox within hours of my requesting them. All of these people and dozens more provided encouragement throughout. My editor at Oxford, Catharine Carlin, helped see the manuscript through to the end, Steve Holt cleaned up the prose on the last draft considerably, and Christine Dahlin carried it through production. My husband Bill Detmer came up with the title and was unremitting in his support. Like Montessori, he is ingenious, respectful of evidence, and full of love, and he inspired me at every step of the way. I am grateful to all these people for their enthusiasm and their help in making a much better manuscript than I ever might have on my own, and I take full responsibility for any mistakes that remain.

Notes on the Book



It is difficult to write about a system that is named after a person. To differentiate the two, the person is always referred to as Dr. Montessori in this text, and the system simply as Montessori. Sometimes this leads to awkward contrasts (Dr. Montessori versus Piaget), but it clarifies references to the person versus the system.

I repeatedly refer to certain Montessori materials and lessons in this book, but these are only a tiny representative fraction of the entire set.

For convenience, I use the word “method” on occasion to refer to Montessori. Some will object, on the grounds that Montessori is much more than a method: it is grounded in a philosophy for life. Also, for convenience of expression, I sometimes use the word “curriculum” to refer to the entire set of Montessori lessons, although it is not technically like a traditional school curriculum.

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1

An Answer to the Crisis in Education

The basis of the reform of education and society, which is a necessity of our times, must be built upon . . . scientific study.

—MARIA MONTESSORI (1949/1974, p. 12, italics in original)



Two fundamental cornerstones of American schooling today were placed at the turn of the 20th century: the school as a factory and the child as a blank slate. Students of child development know that these ideas are obsolete, but they continue to have a profound impact on how schooling is done. The persistence of these outmoded ideas explains why so few children really flourish in school, and why so many strongly prefer snow days to school days. Yet for most of us, envisioning how to eliminate two such entrenched ideas is difficult.

Early in the 20th century, Dr. Maria Montessori did envision a radically different approach to education, an approach grounded in close and insightful observations of children rather than in adult convenience and misconception. Modern research in psychology suggests the Montessori system is much more suited to how children learn and develop than the traditional system is. In the chapters to come, I describe eight of Dr. Montessori's basic insights, recent psychological research concerning those insights, their incorporation into Montessori classrooms, and why they are often incompatible with traditional schooling. In this chapter I discuss the need for reform, and I trace the roots of the two misguided ideas that form the basis of typical American schooling. I close this chapter with an introductory view of Montessori education.