

A MULTI-STATE ANALYSIS OF PUBLIC MONTESSORI PROGRAMS

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BACKGROUND

As Montessori education has expanded in the public sector over the past two decades, it has become more important to consider the impacts of this form of education on student learning and wellbeing. This study examines who participates in public Montessori and the relationship between participation in public Montessori programs and student outcomes in four states/districts across the United States. It gives particular attention to how outcomes may differ by different demographic groups. Using a quasi-experimental design, researchers investigated this topic by examining student-level data across a four-year time period.

RESEARCH QUESTIONS

1. Who participates in public Montessori?
2. What is the relationship between public Montessori participation and student outcomes?
3. Does the relationship between Montessori participation and student outcomes differ by subgroup?

RESEARCH METHODS

This study relied on a student-level database with the universe of public school students in these states/districts from 2015-2016 to 2018-2019. The research team first identified students who attended a public Montessori school. Researchers then compared these Montessori students to other public school students in the same district based on the following variables: race, parental income, gender, ESL status, and disability status. Researchers accounted for the differences in these two groups in three ways. First, researchers used a matching procedure to create two demographically similar groups (Montessori vs. non-Montessori students) with similar baseline outcomes. Second, researchers controlled for demographic factors in the regression analyses. Lastly, researchers examined change rather than merely levels of academic achievement, attendance, and behavior.

RESEARCH RESULTS

Montessori Participation. Researchers first examined the numbers of students enrolled in public Montessori programs in these locales. See below the breakdown of states/districts:

	State 1	State 2	State 3	State 4
2015-16	7,377	4,115	3,841	780
2016-17	7,217	5,366	3,947	1,269
2017-18	7,926	5,734	4,110	1,228
2018-19	7,313	5,950	4,020	1,134

Researchers also explored the demographics of the Montessori schools within these locales. For example, one state had a choice-rich environment with over 30 charter schools, neighborhood schools, and citywide “specialty” schools, with an established voucher program. Another state in the study was a predominately Hispanic school district with relatively few white students. Montessori in the two other states took place in many different types of school districts, from large urban districts to small, rural ones. An in-depth analysis of students in these four states/districts uncovered stark demographic differences between public Montessori students and other public school students. These differences highlighted the need for statistical adjustments prior to exploration of outcomes, since a simple analysis between Montessori and non-Montessori students would not be an apples-to-apples comparison.

Results for Montessori Outcomes. To examine how Montessori participation is associated with student outcomes, researchers performed regression analyses after matching Montessori students to non-Montessori public school students. The results are summarized below. Green cells indicate a statistically significant ($p > 0.10$) better outcome (e.g., higher test scores, fewer suspensions) for Montessori students compared to matched non-Montessori students. Red cells indicate that Montessori students performed statistically significantly worse than non-Montessori students (none). Blank cells represent no statistically significant difference, and grey shaded cells mean that the comparison was not able to be made because of data limitations.

Overall Results and Breakdown by State/District

	ELA	Math	Attendance %	Chronic Absentee	# of Disciplinary Incidents	ISS	OSS
Combined Results	+		+	-	-	-	-
State 1	+		+	-	-	-	-
State 2			+	-	-	-	
State 3			+	-			
State 4						-	-

Note: + means that Montessori students had statistically significantly ($p > 0.10$) higher values when compared to matched comparison students for that outcome. - means that Montessori students had statistically significantly ($p > 0.10$) lower values when compared to matched comparison students for that outcome. Only 1 year of data for the # of Disciplinary Incidents analyses for State 1.

Combined Subgroup Breakdown

	ELA	Math	Attendance %	Chronic Absentee	# of Disciplinary Incidents	ISS	OSS
Black	+		+	-	-	-	-
White	+		+	-	-	-	
Hispanic					-	-	-
Asian							
Other Race					-	-	
Low-Income	+		+	-	-	-	-
Non-Low-Income	+		+	-	-	-	
Female	+		+	-	-	-	-
Male	+		+	-	-	-	

Note: + means Montessori students had statistically significantly ($p > 0.10$) higher values when compared to matched comparison students for that outcome. - means that Montessori students had statistically significantly ($p > 0.10$) lower values when compared to matched comparison students for that outcome.

DISCUSSION

Like previous studies, results show that White and less disadvantaged students are overrepresented in public Montessori when compared to other students in three of the states. In State 4, Montessori students were generally representative of the district at large. On one hand, the differences seen in States 1, 2, and 3 could exacerbate educational inequalities, as these Montessori programs do not fully reflect the demographics of their communities. On the other hand, public Montessori programs may be a method to retain these parents and students in public schools. Montessori programs are more established in the private sector. It is possible that these programs are especially attractive to White and higher-income parents who would otherwise send their children to private schools. It is important to note that the Montessori programs included in this analysis are quite diverse. Students of color make up two-thirds of the student body in one state and 50% of the Montessori students are considered low-income in another state, and about 40% of Montessori students in another state are students of color and over half are considered low-income.

This study joins a growing body of literature on the outcomes of Montessori schooling. Measurement issues and confounding variables make these analyses quite difficult. This analysis takes advantage of state and district databases of public school students. We acknowledge that the outcomes measures used in this analysis are imperfect. This is especially true for the standardized test scores, which can be seen as antithetical to the Montessori model. That being said, as public schools, these programs are held accountable for these test scores and they may be of interest to parents, school officials, policymakers, and the public. These overall analyses do not find consistently large differences between Montessori and non-Montessori students on academic achievement when looking at the state comparison. However, Montessori students in State 1 did have higher ELA growth than non-Montessori students did, and when the data from all four states were combined, Montessori students scored significantly higher. When examining attendance, researchers found that Montessori students in three out of four samples were less likely to be chronically absent and had higher rates of attendance. The combined analyses confirmed a Montessori advantage in attendance. There was also support for the claim that Montessori students exhibited fewer discipline incidents, in-school suspensions, and out-of-school suspensions than non-Montessori students did. While these outcomes are certainly related to parental behavior and school policy, they are also more closely aligned to the Montessori model than standardized test scores.

The final part of this study examined student subgroups. While many previous studies have looked for a “main effect” of Montessori participation on outcomes, they are often unable to consider how the effect of Montessori may differ by subgroup. This is often because the sample sizes in these studies are too small for these types of analyses. This study includes over 18,000 unique Montessori students over a four-year period, which allows us to examine subgroups in a more robust way. The combined analyses produced 63 subgroup comparisons with 38 statistically significant results in favor of Montessori students and zero in favor of non-Montessori students. At a minimum, these analyses suggest that any positive effects associated with Montessori participation are not limited to White or high-income students.