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Emerging Public Montessori research

Four new studies from the AMS Montessori Event poster session



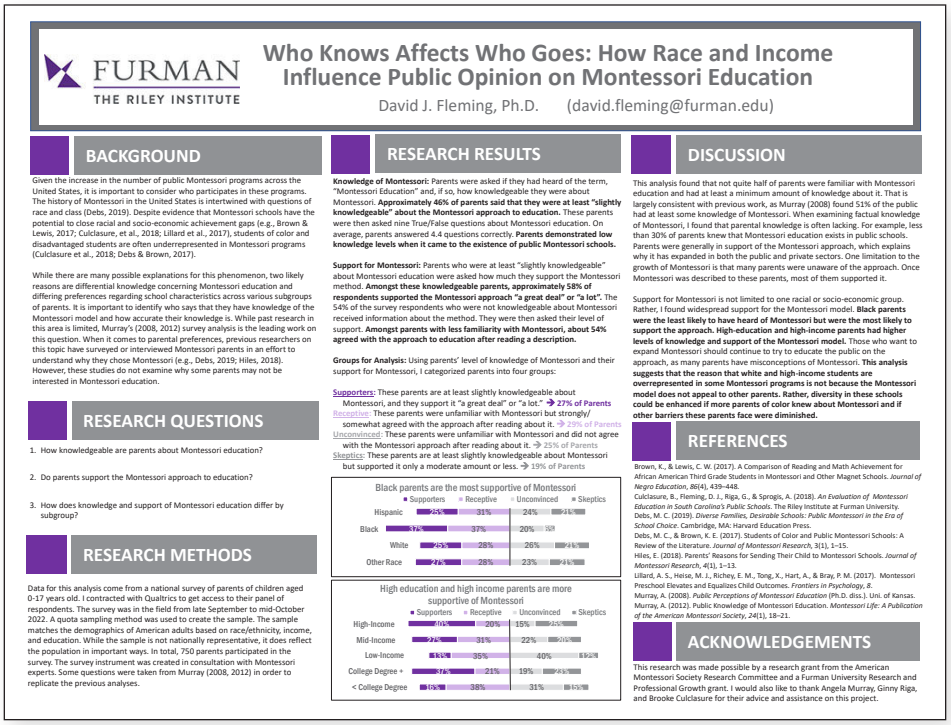
KATIE **BROWN**

Four new studies from the poster session at the American Montessori Society's Montessori Event in March suggest promising avenues for public Montessori research and growth.

The research poster session has been a component of the Event since 2019, allowing researchers studying topics pertinent to Montessori to share their work with practitioners in the field in an informal, conversational way. Researchers create a three-by-four-foot poster outlining their research questions, methods, and findings. These posters are displayed on large bulletin boards, and participants can walk around the venue, read the posters, and talk to the authors about their work. This year's poster session featured four projects with particular salience for public Montessori educators and advocates.

Public Montessori students shown better outcomes

Dr. David Fleming presented a collaborative project with his Furman University colleague, Dr. Brooke Culclasure, examining academic outcome and engagement metrics for over 18,000 Montessori students across four states *(A Multi-State Analysis of Public Montessori Programs)*. In every case where a comparison could be made, Montessori students fared as well as or better than their counterparts in non-Montessori schools.



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Who Knows Affects Who Goes: How Race and Income Influence Public Opinion on Montessori Education

David J. Fleming, Ph.D. (david.fleming@furman.edu)

BACKGROUND

Given the increase in the number of public Montessori programs across the United States, it is important to consider who participates in these programs. The history of Montessori in the United States is intertwined with questions of race and class (Debs, 2019). Despite evidence that Montessori schools have the potential to close racial and socio-economic achievement gaps (e.g., Brown & Lewis, 2017; Culclasure, et al., 2018; Lillard et al., 2017), students of color and disadvantaged students are often underrepresented in Montessori programs (Culclasure et al., 2018; Debs & Brown, 2017).

While there are many possible explanations for this phenomenon, two likely reasons are differential knowledge concerning Montessori education and differing preferences regarding school characteristics across various subgroups of parents. It is important to identify who says that they have knowledge of the Montessori model and how accurate their knowledge is. While past research in this area is limited, Murray's (2008, 2012) survey analysis is the leading work on this question. When it comes to parental preferences, previous researchers on this topic have surveyed or interviewed Montessori parents in an effort to understand why they chose Montessori (e.g., Debs, 2019; Hiles, 2018). However, these studies do not examine why some parents may not be interested in Montessori education.

RESEARCH QUESTIONS

1. How knowledgeable are parents about Montessori education?
2. Do parents support the Montessori approach to education?
3. How does knowledge and support of Montessori education differ by subgroup?

RESEARCH METHODS

Data for this analysis come from a national survey of parents of children aged 0-17 years old. I contracted with Qualtrics to get access to their panel of respondents. The survey was in the field from late September to mid-October 2022. A quota sampling method was used to create the sample. The sample matches the demographics of American adults based on race/ethnicity, income, and education. While the sample is not nationally representative, it does reflect the population in important ways. In total, 750 parents participated in the survey. The survey instrument was created in consultation with Montessori experts. Some questions were taken from Murray (2008, 2012) in order to replicate the previous analyses.

RESEARCH RESULTS

Knowledge of Montessori: Parents were asked if they had heard of the term, "Montessori Education" and, if so, how knowledgeable they were about Montessori. **Approximately 46% of parents said that they were at least "slightly knowledgeable" about the Montessori approach to education.** These parents were then asked nine True/False questions about Montessori education. On average, parents answered 4.4 questions correctly. **Parents demonstrated low knowledge levels when it came to the existence of public Montessori schools.**

Support for Montessori: Parents who were at least "slightly knowledgeable" about Montessori education were asked how much they support the Montessori method. **Amongst these knowledgeable parents, approximately 58% of respondents supported the Montessori approach "a great deal" or "a lot".** The 54% of the survey respondents who were not knowledgeable about Montessori received information about the method. They were then asked their level of support. **Amongst parents with less familiarity with Montessori, about 54% agreed with the approach to education after reading a description.**

Groups for Analysis: Using parents' level of knowledge of Montessori and their support for Montessori, I categorized parents into four groups:

Supporters: These parents are at least slightly knowledgeable about Montessori, and they support it "a great deal" or "a lot." → 27% of Parents
Receptive: These parents were unfamiliar with Montessori but strongly/somewhat agreed with the approach after reading about it. → 29% of Parents
Unconvinced: These parents were unfamiliar with Montessori and did not agree with the Montessori approach after reading about it. → 25% of Parents
Skeptics: These parents are at least slightly knowledgeable about Montessori but supported it only a moderate amount or less. → 19% of Parents

DISCUSSION

This analysis found that not quite half of parents were familiar with Montessori education and had at least a minimum amount of knowledge about it. That is largely consistent with previous work, as Murray (2008) found 51% of the public had at least some knowledge of Montessori. When examining factual knowledge of Montessori, I found that parental knowledge is often lacking. For example, less than 30% of parents knew that Montessori education exists in public schools. Parents were generally in support of the Montessori approach, which explains why it has expanded in both the public and private sectors. One limitation to the growth of Montessori is that many parents were unaware of the approach. Once Montessori was described to these parents, most of them supported it.

Support for Montessori is not limited to one racial or socio-economic group. Rather, I found widespread support for the Montessori model. **Black parents were the least likely to have heard of Montessori but were the most likely to support the approach. High-education and high-income parents had higher levels of knowledge and support of the Montessori model.** Those who want to expand Montessori should continue to try to educate the public on the approach, as many parents have misconceptions of Montessori. **This analysis suggests that the reason that white and high-income students are overrepresented in some Montessori programs is not because the Montessori model does not appeal to other parents. Rather, diversity in these schools could be enhanced if more parents of color knew about Montessori and if other barriers these parents face were diminished.**

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ACKNOWLEDGEMENTS

This research was made possible by a research grant from the American Montessori Society Research Committee and a Furman University Research and Professional Growth grant. I would also like to thank Angela Murray, Ginny Riga, and Brooke Culclasure for their advice and assistance on this project.

The researchers found that public Montessori students, as a group, were not demographically representative of the states as a whole; White students and economically disadvantaged students were overrepresented in the Montessori schools. Because of this overrepresentation, the researchers created a demographically matched comparison group to look at outcomes across Montessori and non-Montessori settings. They tested for differences in performance on language arts and math standardized tests; attendance; chronic absenteeism; and disciplinary events, including in-school and out-of-school suspensions.

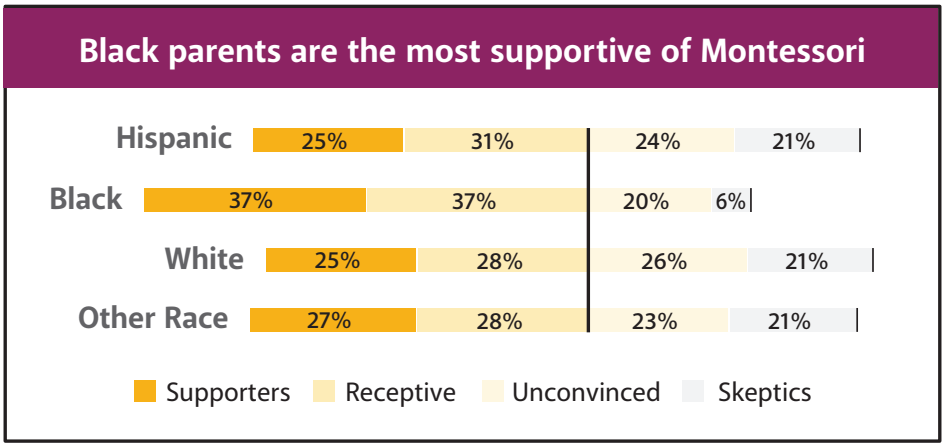
Overall, Montessori students:

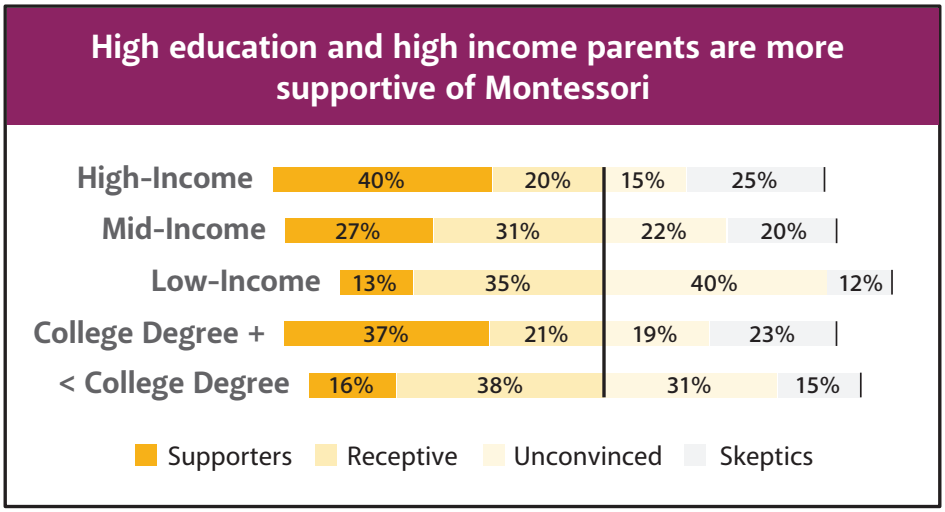
- performed better on English language arts assessments,
- demonstrated higher rates of attendance
- were less likely to experience chronic absenteeism
- had fewer disciplinary incidents than non-Montessori students

When the results were disaggregated by subgroup, these results held for Black, white, and economically disadvantaged students. There were no differences in language arts outcomes for Hispanic students, Asian students, and students of other races in Montessori and non-Montessori settings, though Hispanic students and students of other races did have better disciplinary outcomes in Montessori contexts.

The authors conclude that the Montessori programs examined in this study were quite racially and socioeconomically diverse, though White students were overrepresented in three of the four states studied. Though the academic achievement comparisons were not a slam dunk for Montessori, "at a minimum, these analyses suggest that any positive effects associated with Montessori participation are not limited to White or high-income students." In particular, the results pertaining to

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attendance and school discipline suggest that Montessori programs may produce higher levels of engagement and belonging in schools.

Research posters are not the same as published, peer-reviewed studies, but if these results hold through the submission process, now underway, they will be very strong for public Montessori.

Who knows affects who goes

One reason for the under-representation of Black students in public Montessori schools could be that this group is less aware of Montessori as an option. Another could be Black families' levels of support for Montessori. Another poster dug into these questions and found some surprising answers.

Dr. David Fleming's study *Who Knows Affects Who Goes: How Race and Income Influence Public Opinion on Montessori Education* investigates parents' levels of knowledge and support for Montessori education, including how these factors vary by subgroup within the US parent population.

Researchers surveyed a national sample of 750 parents of children under 18. Almost 50% of participating parents reported that they were at least "slightly knowledgeable" about Montessori, and their performance on a nine-question quiz about Montessori suggests this is true: on average, they answered about half of these true/false questions correctly. Parents without prior knowledge of Montessori were then provided with a brief description of the approach, and asked if they would support it. Overall, Montessori had a fairly high level of support both among parents who were (58%) and were not (54%) initially knowledgeable about the method, though Fleming notes that "parents demonstrated low knowledge levels when it came to the existence of public Montessori schools."

Fleming classified participants into four groups: supporters (knowledgeable and supportive), receptive (not knowledgeable but supportive), unconvinced (not knowledgeable and not supportive), and skeptics (knowledgeable but not supportive).

Respondents were also grouped by race, income level, and level of education. Generally speaking, high-income, high-education parents were most likely to be supportive of Montessori, while low-income, non-college-degree-holding parents were more likely to be unconvinced or skeptical. Among racial groups, Black parents were most likely to be supportive of or receptive to Montessori, with almost three-quarters reporting positive views of Montessori, though they were also the least likely to have heard of Montessori.

As the title of this poster suggests, Fleming argues that the demographic composition of public Montessori schools is related to "who knows" about Montessori: "This analysis suggests that the reason that white and high-income students are overrepresented in some Montessori programs is not because the Montessori model does not appeal to other parents. Rather, diversity in these schools could be enhanced if more parents of color knew about Montessori and if other barriers these parents face were diminished." This indicates that public Montessori schools must be intentional in their outreach and recruitment efforts in order to create schools that are representative of the communities they serve.

What do teachers think about policy, and what can they do about it?

Doctoral candidate Heather Gerker interviewed public Montessori teachers to find out how, if at all, these teachers

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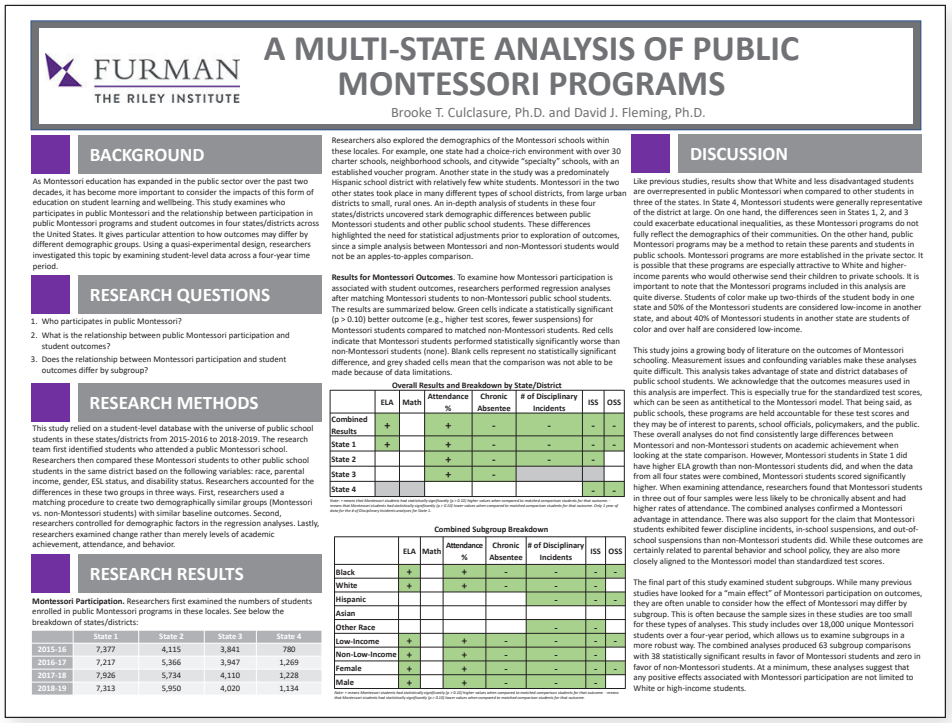
shift their pedagogy in response to education policy, and how they perceive their ability to respond to or influence policymakers *(Montessori Pedagogy and Policy in Public Schools: Exploring the Challenges and Moving toward Advocacy)*.

Study participants included eight teachers, representing early childhood through high school, working in district Montessori programs across five different states. Participants were interviewed weekly for three weeks, a format that allowed both the participants and the researcher to reflect on themes emerging from these conversations. These themes included the idea that Montessori is "more than the materials," and is in fact a comprehensive pedagogical approach. They felt that as Montessori programs existing within the context of a public school district, they were sometimes treated as "a square peg in a round hole." Lastly, they felt that their expertise as teachers was not always recognized at the district level. Though state and federally mandated assessments are often named as key conflicts for public Montessori educators, the mandates that these educators wrestled with the most were district-specific.

These conversations coalesced around a set of recommendations for district leaders:

1. Listen to teachers–and act on their suggestions.
2. Create and solicit input from a district Montessori advocacy group.
3. Provide education about Montessori for all stakeholder groups in the community.
4. Create policies that are flexible enough to be implemented in a way that's appropriate for each school.
5. Provide Montessori professional development for Montessori educators.

They also suggested that Montessori teacher education programs include advocacy and policy work as part of teacher preparation. As teachers are integral to the success of any Montessori school, public or private, districts hoping to launch or sustain a Montessori program should take heed of these insights to better support teachers and their work.



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A MULTI-STATE ANALYSIS OF PUBLIC MONTESSORI PROGRAMS

Brooke T. Culclasure, Ph.D. and David J. Fleming, Ph.D.

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						-	-

Combined Subgroup Breakdown

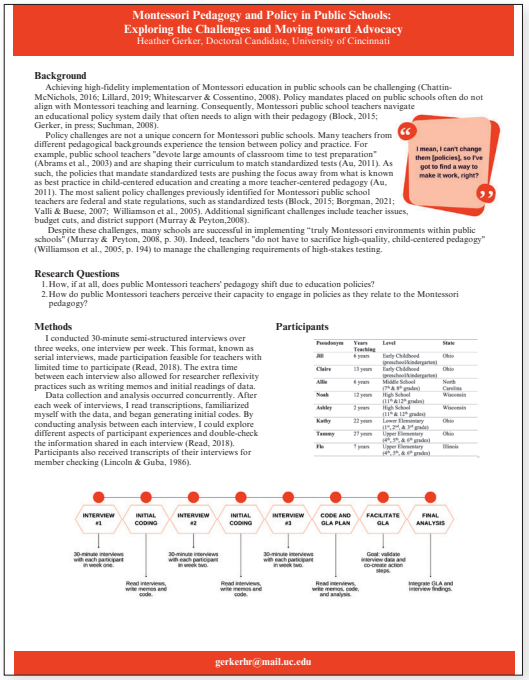
	ELA	Math	Attendance %	Chronic Absentee	# of Disciplinary Incidents	ISS	OSS
Black	+		+	-	-	-	-
White	+		+	-	-	-	
Hispanic					-	-	-
Asian							
Other Race					-	-	
Low-Income	+		+	-	-	-	-
Non-Low-Income	+		+	-	-	-	
Female	+		+	-	-	-	-
Male	+		+	-	-	-	

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.



Montessori Pedagogy and Policy in Public Schools: Exploring the Challenges and Moving toward Advocacy

Heather Gerker, Doctoral Candidate, University of Cincinnati

Background

Achieving high-fidelity implementation of Montessori education in public schools can be challenging (Chattin-McNichols, 2016; Lilland, 2019; Whitescarver & Cossentino, 2008). Policy mandates placed on public schools often do not align with Montessori teaching and learning. Consequently, Montessori public school teachers navigate an educational policy system daily that often needs to align with their pedagogy (Block, 2015; Gerker, in press; Suchman, 2008).

Policy challenges are not a unique concern for Montessori public schools. Many teachers from different pedagogical backgrounds experience the tension between policy and practice. For example, public school teachers "devote large amounts of classroom time to test preparation" (Abrams et al., 2003) and are shaping their curriculum to match standardized tests (Au, 2011). As such, the policies that mandate standardized tests are pushing the focus away from what is known as best practice in child-centered education and creating a more teacher-centered pedagogy (Au, 2011). The most salient policy challenges previously identified for Montessori public school teachers are federal and state regulations, such as standardized tests (Block, 2015; Borgman, 2021; Valli & Buese, 2007; Williamson et al., 2005). Additional significant challenges include teacher issues, budget cuts, and district support (Murray & Peyton,2008).

Despite these challenges, many schools are successful in implementing "truly Montessori environments within public schools" (Murray & Peyton, 2008, p. 30). Indeed, teachers "do not have to sacrifice high-quality, child-centered pedagogy" (Williamson et al., 2005, p. 194) to manage the challenging requirements of high-stakes testing.

"I mean, I can't change them [policies], so I've got to find a way to make it work, right?"

Research Questions

1. How, if at all, does public Montessori teachers' pedagogy shift due to education policies?
2. How do public Montessori teachers perceive their capacity to engage in policies as they relate to the Montessori pedagogy?

Methods

I conducted 30-minute semi-structured interviews over three weeks, one interview per week. This format, known as serial interviews, made participation feasible for teachers with limited time to participate (Read, 2018). The extra time between each interview also allowed for researcher reflexivity practices such as writing memos and initial readings of data.

Data collection and analysis occurred concurrently. After each week of interviews, I read transcriptions, familiarized myself with the data, and began generating initial codes. By conducting analysis between each interview, I could explore different aspects of participant experiences and double-check the information shared in each interview (Read, 2018). Participants also received transcripts of their interviews for member checking (Lincoln & Guba, 1986).

Participants

Pseudonym	Years Teaching	Level	State
Jill	6 years	Early Childhood (preschool/kindergarten)	Ohio
Claire	13 years	Early Childhood (preschool/kindergarten)	Ohio
Allie	4 years	Middle School (7th & 8th grades)	North Carolina
Noah	12 years	High School (9th, 10th, & 12th grades)	Wisconsin
Ashley	3 years	High School (11th & 12th grades)	Wisconsin
Kathy	22 years	Lower Elementary (1st, 2nd, & 3rd grade)	Ohio
Tammy	27 years	Upper Elementary (4th, 5th, & 6th grades)	Ohio
Flo	7 years	Upper Elementary (4th, 5th, & 6th grades)	Illinois

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What do districts need to know?

The final study to be highlighted here, a joint venture between the National Center for Montessori in the Public Sector (Dr. Katie Brown–the author) and Montessori Partnerships for Georgia (Dr. Ian Parker and Annie Frazer), also focused on Montessori in district contexts *(Public Montessori as a Reform Model: Questions and Considerations for School Districts)*.

Recognizing that district Montessori programs are a key lever for increasing access to Montessori, the researchers asked: *What questions would school district leaders need answered about a new curriculum, like Montessori, in order to consider its implementation?*

To answer this question, we interviewed 11 district-level leaders from eight different school districts across five regions of the United States. Five of these districts had an established

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Montessori program, one had a nascent Montessori program, and the other two had no Montessori program at all.

When asked what questions and concerns they would have about launching a new program like Montessori, school leaders responded with ideas across three general categories:

- their own understanding of the program
- the local sociopolitical context within which they work
- the nuts-and-bolts practicalities of what launching the program would mean.

Generally speaking, most district leaders had some experience with Montessori in their personal lives, often as a Montessori parent or grandparent, and had positive views of the pedagogy. However, they recognized that they would need more knowledge than this in order to effectively oversee a Montessori program.

District leaders were also cognizant of the context and climate within their district at any given moment, and reported that they would need to think carefully about funding constraints, political capital, and how–or if–they could solicit buy-in from teachers. Interestingly, district leaders did not report any significant role for families in this decision-making process, though teachers' views were influential.

Lastly, district leaders had very specific questions about concrete concerns like teacher training and recruitment; facilities; and lotteries, transportation, and access. Interestingly, these responses indicate that district leaders might be open to the types of suggestions identified by Heather Gerker in her study, at least at the outset of a new program. The authors conclude that the expansion of district Montessori programs could be supported and accelerated by outreach and education for district leaders, including an implementation road map to guide the start-up process.

It's gratifying to see researchers turning their attention to key questions and problems of the public Montessori movement. Taken together, these studies highlight the promise and potential of public Montessori schools, as well as opportunities for continued growth.

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