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Contents

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From the Editor

Welcome to the second decade of the *Journal of Montessori Research.* This issue features articles about two important research studies as well as a review of three excellent doctoral dissertations.

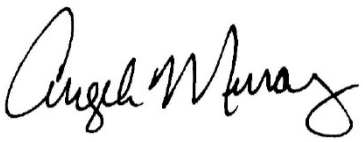
In the first article, David Fleming, TJ Robertson, and Josebell Rivadeneira Cevallos report on their study examining the relationship between school choice, segregation, and the Montessori model. This study provides a baseline for evaluating current efforts to improve accessibility and inclusivity in Montessori schools nationwide.

In the second article, Sharon Damore and Barbara Stacy Rieckhoff explore the impact and relevance of use of case studies as a teaching and learning tool in Montessori leadership programs. The authors find certain elements of case studies enhance learning theory and serve as springboards to practice, suggesting reflection is key and that content specific to Montessori settings may further support the usefulness and effectiveness of case studies.

Joel Parham, Katie Keller Wood, and Claudine Campanelli authored the third annual review of a selection of the previous year's English-language dissertations related to Montessori philosophy and education. The review highlights three dissertations among 21 completed during the 2024 calendar year. The authors identify that prevalent themes in last year's field of 21 include (a) practices of Montessori educators, (b) teacher training, (c) public Montessori, and (d) reading development and aptitude.

I hope you enjoy this issue and invite you to look forward to the fall issue, which is shaping up to be excellent.

Sincerely,



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Examining Racial Segregation in Montessori Schools: A National Analysis of Enrollment Patterns and Sector Differences

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Keywords: *racial segregation, Montessori schools, enrollment patterns*

Abstract: This study examines racial enrollment patterns in Montessori schools across the United States and evaluates how these schools relate to broader patterns of school segregation. Using a national dataset of public and private Montessori and non-Montessori schools, we analyze Montessori programs' racial composition, demographic alignment with surrounding districts and neighborhoods, and contribution to within-district segregation. We estimate 37 percent of Montessori students are Black or Hispanic, with notable variation across school sectors. Further, we find Black or Hispanic students are underrepresented in many Montessori schools as compared to school district averages. Our multivariate analyses suggest Montessori schools contribute slightly more to within-district segregation than do non-Montessori schools, primarily due to enrollment patterns in private Montessori schools. Though Montessori education emphasizes inclusivity and cultural responsiveness, variation in enrollment patterns suggests access remains uneven across school sectors. This study examines the relationship between school choice, segregation, and the Montessori model, providing a baseline for evaluating current efforts to improve accessibility and inclusivity in Montessori schools nationwide.

Introduction

In March 2022, journalist Jessica Winter gained attention for a book review in *The New Yorker*. In her article titled "The Miseducation of Maria Montessori," Winter (2022) discusses Cristina De Stefano's (2022) biography of Maria Montessori, *The Child Is the Teacher: A Life of Maria Montessori*. In the article, Winter argues Montessori education in the United States does not match the philosophy of its namesake. She writes, "The obvious irony of Montessori's crusade on behalf of the poorest and least powerful in society is that its most visible legacy is selective private schools for the élite." While acknowledging the existence of a few hundred public Montessori schools across the country, Winter contends that Montessori education is a true option only for White children with higher-income parents because the Montessori "method was not only something to be taught; it was something to be sold."

Not surprisingly, Winter's article generated a significant reaction in the Montessori community. For example, Dr. Ayize Sabater, executive director of Association Montessori International of the United States (AMI/USA), responded to the article by noting that many in the Montessori community work diligently to make Montessori education more accessible and inclusive, despite larger structural and cultural challenges all education reformers face across the country (AMI/USA, 2022). Dr. Sabater also noted that Winter's observations about the current state of Montessori education were based on the author's "own limited experience and research."

Regardless of where one stands on Winter's argument, many in the Montessori community hold a sincere desire to make Montessori education more accessible to students of all racial and socioeconomic backgrounds. As these good faith efforts continue, it is essential to have a greater understanding of the state of Montessori education in the United States today to assess current challenges and establish a baseline for measuring future progress.

To this end, we examine the relationship between Montessori education and racial segregation across school sectors in the United States. Montessori education has expanded considerably in the public sector over the past 50 years, making it the "largest alternative pedagogy in the U.S. public school system" (Debs & Brown, 2017, p. 2). White and Huang (2022) found that Montessori is the eighth most common type of charter school in the United States. Despite this growth in the public sector, the vast majority of Montessori schools in the United States are private, with approximately 4,500 private Montessori schools of 5,000 total (American Montessori Society, n.d.). Unlike previous analyses, which focused only on public Montessori students (e.g., Brown, 2016; Debs, 2016; Fleming & Culclasure, 2024), our analysis includes private Montessori schools, since this is how most students experience Montessori education.

An analysis of the relationship between Montessori education and school segregation is timely for three reasons. First, the COVID-19 pandemic significantly impacted students' well-being and learning. By one estimate, the average student lost about half of a grade level in math and one-third of a grade level in reading between 2019 and 2022 (Fahle et al., 2024). Second, racial and economic school segregation are associated with existing achievement gaps as well as the widening of those gaps over time (Reardon et al., 2024). Finally, as is further addressed below, the Montessori philosophy holds great promise for creating more equitable educational outcomes. Furthermore, evaluations of Montessori programs suggest they can enhance learning for students, including students of color (e.g., Fleming & Culclasure, 2024; Lillard, Tong, et al., 2023). Together, these factors highlight the value of examining how Montessori education relates to patterns of school segregation and educational equity.

Research Questions

Using the Urban Institute's Segregation Contribution Index (SCI), this study compares the racial composition of Montessori schools to that of surrounding neighborhoods and districts. Since Black and Hispanic students are grouped together in the Urban Institute data, we cannot examine them separately in this analysis. We seek to answer the following questions:

1) What is the proportion of Black or Hispanic students in Montessori schools, both overall and by school type?
2) How does the proportion of Black or Hispanic students in Montessori schools compare to the demographics of their local school districts and neighborhoods?
3) How does the presence of Montessori programs relate to racial segregation within school districts, and how does this differ by school sector?

In the following section, we provide an overview of trends in racial segregation in American schools and the impact of segregation on students. We also discuss several reasons Montessori programs could lead to better integrated schools, as well as factors that predict that Montessori education may exacerbate school segregation. In the subsequent section, we describe our dataset, which attempts to include all K–12 Montessori schools in the country. We combine these data with the Urban Institute's measure of school segregation. In the results section, we analyze the racial composition of Montessori student bodies, comparing those demographics across school sectors based on district and neighborhood averages. We then estimate how Montessori education relates to intradistrict school segregation. In the concluding section of the paper, we discuss important limitations of this analysis and highlight implications for future research.

Literature Review

Racial Segregation in America's Schools

Throughout the past 75 years, segregation of American schools has been a focus of the public, politicians, and researchers. In this paper, we define segregation as an uneven distribution of students across schools by race. Desegregation refers to efforts or policies aimed at reducing this unevenness, whereas integration goes further to imply meaningful, equitable inclusion of students across racial groups. Studies that have tracked changes in school segregation since *Brown v. Board of Education* (1954) identified initial declines in Black-White segregation from approximately the 1960s to the 1980s, followed by stagnation or even resegregation in more recent years (Reardon & Owens, 2014). Reardon and Owens (2024) found White-Black school segregation increased by 37% from 1991 to 2021. Hispanic-White and Asian-White segregation also increased from the late 1960s through 2020 (Orfield & Lee, 2007; Reardon & Owens, 2024). Further, income-based segregation has been rising across schools and districts for decades. One study estimates that school segregation between students eligible for free or reduced-priced lunches and those ineligible has grown by 52% from 1991 to 2019 (Reardon & Owens, 2024). Since the Supreme Court's *Milliken v. Bradley* (1974) decision, which greatly limits policies to mandate school desegregation across school district lines, efforts have mainly focused on reducing school segregation within school districts. However, most segregation is interdistrict, meaning it occurs between school districts, rather than intradistrict, which refers to segregation within a single district (Reardon & Owens, 2024; Stroub & Richards, 2013).

Causes of school segregation are quite varied. Residential segregation is a primary driver of school segregation, as a strong correlation exists between school and neighborhood segregation (Whitehurst et al., 2017). However, trends in increased neighborhood integration have not led to increased school integration (Reardon & Owens, 2024). Legal and policy factors, such as those related to *Milliken v. Bradley* (1974) and the U.S. Supreme Court's 2007 ruling in *Parents Involved in Community Schools v. Seattle School District No. 1*, have limited race-conscious desegregation efforts. Given the lack of interdistrict integration efforts, "White flight" out of diverse school districts as well as increased private school enrollment have exacerbated racial school segregation (Reardon & Yun, 2003, p. 1585). Parental decisions can reinforce segregation. White parents, in particular, exhibit racialized preferences when selecting schools for their children, even after controlling for academic achievement factors (Billingham & Hunt, 2016).

Research has identified school segregation's real-world implications and impacts on short-term and long-term student outcomes. Segregated schools, especially if combined with high levels of student poverty, tend to have lower academic achievement growth, leading to achievement gaps for Black and Hispanic students (Billings et al., 2014; Reardon et al., 2019). Achievement disparities are generally larger and grow faster in more segregated school districts, as students of color are often concentrated in high-poverty districts (Reardon et al., 2022, 2024). Educational attainment is also affected, as Reber (2010) demonstrates how court-ordered desegregation policies have led to reductions in dropout rates. Ending such court-ordered desegregation policies has increased dropout rates among Black and Hispanic students (Johnson, 2011; Lutz, 2011). Schools with high concentrations of students of color and low-income students have less access to experienced teachers, fewer advanced course offerings, and often lower per-pupil funding given student needs (Reardon & Owens, 2014). Segregated schools often employ harsher disciplinary policies, which lead to increased suspensions and expulsions for students of color (Reardon et al., 2019). Prior research indicates White students are not harmed by desegregation efforts. While well-integrated schools have been found to benefit students of color, they do not have a significant negative impact on White students'

educational outcomes (Guryan, 2004; Johnson, 2011; Reber, 2010).

Benefits of integrated schools are not limited to academic outcomes. Students attending racially diverse schools are more likely to develop cross-cultural understanding, cross-racial friendships, and greater social trust (Reardon & Owens, 2014). Long-term benefits can arise from desegregation efforts. Black students exposed to integrated schools had higher lifetime earnings and were more likely to enter higher-paying professions (Ashenfelter et al., 2006; Johnson, 2011; Reber, 2010). Further, Weiner et al. (2009) found that Black students exposed to desegregation had lower rates of incarceration and criminal activity. Johnson (2012) suggests the impacts of desegregation efforts extend beyond the first generation, benefiting also children and grandchildren of those who attended integrated schools. Despite the benefits of integrated schools outlined here, legal, policy, and political factors have made it difficult to dismantle a system of racially segregated schools in the United States.

Private Schools, School Choice, and Segregation

A holistic analysis of Montessori education and school segregation requires attention to school sector. Racial segregation rates are higher in private schools than in public schools (Reardon & Yun, 2002). Private school enrollment rates are lower for Black and Hispanic families than for White and Asian families (Clotfelter, 2004; Murnane et al., 2018; Reardon & Yun, 2002). Historically, many private schools have contributed to school segregation, particularly in the southern United States, where some White parents have used them as a way to avoid sending their children to integrated public schools (Clotfelter, 2004). Bankston and Caldas (2000) found that White enrollment in private schools is associated with higher levels of student-of-color concentration in public schools, reinforcing racial imbalances. The distribution of middle- and low-income students in private schools has declined by half over time, while enrollment of high-income students has remained steady (Murnane & Reardon, 2018). This disproportionality in private school enrollment can be attributed to a variety of factors, including increases in tuition, closure of low-cost Catholic schools, and expansion of charter and magnet schools (Murnane & Reardon, 2018; Murnane et al, 2018). Due to longstanding racial wealth gaps, private schools have often been out of reach for many marginalized communities.

Charter schools have also played an increasingly significant role in school segregation. Research on the relationship between charter schools and school segregation demonstrates charter schools are often more racially isolated than traditional public schools, especially in urban areas (Frankenberg et al., 2011, 2025). Charter schools tend to have a bimodal racial composition, with some serving predominantly White students and others overwhelmingly students of color. Monarrez et al. (2022) found that charter schools increase racial and socioeconomic segregation within school districts. Charter schools exhibit higher levels of segregation, even though they enroll a higher percentage of Black students. More than 80% of Black and Latine charter school students attend segregated schools (Frankenberg et al., 2011). While the number of "diverse by design" charter schools is increasing, they only constitute 2% of all U.S. charter schools (Potter & Quick, 2018, p. 1). This transition of wealthy, often White, students from private to public sector has been linked to exacerbating White-Black and socioeconomic segregation in the public school system (Alcaino & Jennings, 2020; Ladd et al., 2016; Renzulli & Evans, 2005). School entry structures, such as random lotteries in oversubscribed schools, may decrease school segregation, but they do not guarantee integrated school environments. Despite efforts of those in the charter school community, many charter schools are associated with increased segregation.

Magnet schools, however, have been more successful than charter and private schools at maintaining racial diversity. Given that their origins are tied to desegregation policies, magnet schools were deliberately designed to create integrated learning environments. Policies such as weighted admission lotteries, free transportation, and targeted outreach have helped maintain racial balance (Siegel-Hawley & Frankenberg, 2012). Siegel-Hawley and Frankenberg (2012) conducted a survey that found two-thirds of magnet schools have deliberate diversity recruitment practices. However, some magnet schools have moved away from desegregation efforts, instead focusing more on academic outcomes and reducing racial achievement gaps (Pack, 2017).

The effectiveness of magnet schools in addressing segregation remains debated. Some studies suggest magnet schools have contributed to racial segregation in non-magnet schools because high-achieving students leave their zoned schools to attend them, which increases racial isolation in traditional public schools (Taylor Haynes et al., 2010). Meanwhile, Davis (2014) found racial composition of magnet schools does not

statistically differ from traditional public schools, but magnet schools tend to be more heterogeneous within classrooms and across different tracking levels. However, Latine students tend to be underrepresented in magnet schools, perhaps due to policymakers focusing primarily on Black-White segregation patterns (Taylor Haynes et al., 2010). Overall, magnet schools have been more successful in creating integrated learning environments as compared to private and charter schools.

The Montessori Model and School Segregation

There are several reasons Montessori education may promote school integration, not only in terms of racial balance but also by fostering culturally sensitive learning environments that reflect integration beyond desegregation. Rooted in an egalitarian philosophy, Montessori education emphasizes educational inclusion as a core principle. For decades, Montessori programs have been used in urban districts to promote racial and economic diversity (Debs, 2019). As such, the Montessori model appeals to a wide variety of parents across racial and economic backgrounds (Debs, 2016).

As an alternative pedagogical approach, Montessori education has attracted interest across diverse groups. The Montessori model aligns with culturally responsive pedagogy (CRP) and can be used to promote social justice education (Lillard, Taggart, et al., 2023). Additionally, Montessori can incorporate culturally sustaining teaching to enhance school experiences for students of color (D'Cruz, 2022). A fundamental feature of the Montessori model—the three-year cycle with the same teacher—allows for deeper student-teacher relationships, which can benefit diverse learners (Brown & Steele, 2015). Montessori teacher training focuses on individual child development and emphasizes self-determination, allowing students of all backgrounds to reach their full potential without being limited by teacher biases (Lillard, Tong, et al., 2023). Montessori education features multiage classrooms, promoting inclusivity and a culture in which older students set expectations for younger students at the start of the school year. This structure fosters consistent classroom norms and engagement across age groups (Lillard, 2016).

Historically, low-income families were often early adopters of Montessori due to its concrete, hands-on approach to learning, which mirrored teaching styles of many working-class parents (Orem, 1968). This pattern persists today, with many working-class Black and Latine parents expressing satisfaction with their Montessori experience (Debs, 2019).

There is also empirical support outlining the benefits of Montessori education for students of color. A study of preschool outcomes found Montessori education reduces racial and ethnic disparities in academic achievement and social cognition (Lillard, Tong, et al., 2023). Although Black, Hispanic, and multiracial students initially scored lower than White students in both Montessori and traditional schools, by the end of preschool, these differences were no longer significant in Montessori schools, unlike in traditional schools. A study of Montessori pre-K Latine children from low-income families found that students in Montessori programs demonstrate stronger pre-academic skills at the end of pre-K and perform better on standardized tests in third grade as compared to non-Montessori peers (Ansari & Winsler, 2022). Additionally, Black students in South Carolina's public Montessori programs outperformed peers in traditional public schools as measured by reading growth on standardized tests (Fleming & Culclasure, 2024).

Although Montessori education has the potential to promote school integration, several factors may also contribute to its association with heightened school segregation. Despite its origins in serving under-resourced children, Montessori education in the United States has become associated with wealthier, White families (Winter, 2022). Although public Montessori programs may begin as diverse schools bringing together children from different backgrounds, they often become less racially diverse over time (Debs, 2019).

Several policies, such as selective admission processes, lack of public funding, and limited outreach to families of color, limit the potential for integration in some Montessori programs (Debs, 2019). Private, charter, and magnet Montessori schools use admissions strategies that sometimes disadvantage students of color by favoring applicants with previous Montessori experience, strong family interest, or higher socioeconomic status (Debs, 2019; Debs & Brown, 2017). Additionally, subjective admissions criteria, such as interviews and family interest assessments, may disadvantage underrepresented families (Kahn, 1990). Many private Montessori preschools charge tuition, creating a financial barrier for families of color due to the intersection of race and socioeconomic status (Debs & Brown, 2017; Gillborn, 2015).

Montessori school leadership is often majority

White, including school founders, PTA boards, and teachers (Debs, 2019). This leadership dynamic may contribute to school policies that disproportionately exclude or fail to recruit students of color. Research has found that White families are more aware of Montessori education than Hispanic, Black, Asian, and Native American families, with awareness strongly linked to parental education levels (Murray, 2008).

Furthermore, location and design of Montessori schools significantly affect their composition. Fleming et al. (2024) found that public Montessori programs in South Carolina were more likely to be established in districts with a lower percentage of students in poverty. Placing Montessori schools in wealthier, predominantly White areas may unintentionally limit access for marginalized students (Debs, 2019). Conversely, although placing Montessori schools in low-income communities can increase accessibility, it may discourage affluent families from enrolling and thereby reduce economic diversity. Also, some Montessori charter and magnet schools lack state funding for key amenities such as public transportation, robust free lunch programs, and after-school care, all of which disproportionately impact low-income families (Debs, 2019; Murray & Peyton, 2008).

Despite the importance of the relationship between Montessori education and school segregation, few studies have analyzed the demographics of Montessori students, and most research has focused solely on public Montessori schools, even though most Montessori schools are private. In a study of 85 public Montessori programs, Murray and Peyton (2008) estimated about 60% of enrolled students were White, 24% were Black, and 10% Hispanic. A study of nearly 12,000 public Montessori students in South Carolina found the racial makeup of Montessori programs mirrored state averages, though intradistrict comparisons indicated students of color were underrepresented in Montessori programs relative to other schools in the same district (Fleming & Culclasure, 2024). Debs (2016) found public Montessori students were less likely than their traditional public school counterparts to attend racially homogenous schools. However, compared to other schools within the same district, 58% of public Montessori schools had significantly lower percentages of students of color than did the surrounding district. Similarly, Brown (2016) found White students were overrepresented in Montessori charters relative to the district's racial composition (Brown, 2016).

Overall, Montessori schools have potential to either increase or decrease school segregation, depending on recruitment strategies, location, and access policies. Although many Montessori programs have attracted diverse families, evidence still shows White students are overrepresented in Montessori programs. However, previous studies have been limited in scope and are unable to estimate differences across school sectors.

Methodology

Data

This analysis combines three different datasets. The first dataset comes from the Urban Institute's 2020 report on school segregation (Monarrez et al., 2019). The authors used data from the National Center for Education Statistics (NCES) regarding public and private schools for the 2017–2018 academic year. This dataset includes a measure of each school's contribution to racial segregation within the school district. We augmented the Urban Institute data with the full Private School Universe Survey (PSS). While the PSS is meant to be a census of all private schools in the United States, not all schools are included. The estimated response rate for the 2017–2018 PSS was approximately 80%. Further, when we merged the PSS with the Urban Institute dataset, we successfully matched 78% of private schools in the PSS. Of the private schools not in the Urban Institute data, almost 50% have total school enrollments of fewer than 50 students. While the majority of private schools are included in this study, it is important to note our dataset does not include all private schools. The final dataset merged in this analysis is from the Montessori Census. The Montessori Census is a resource produced by the National Center for Montessori in the Public Sector. Our combined dataset attempts to identify all public and private Montessori schools in the country but is limited to K–12 programs. Because many Montessori programs primarily serve early childhood education, they are excluded from this analysis, restricting the generalizability of the study.

Measures

Whether or not a school is a Montessori school was our main independent variable. We utilized multiple methods to identify Montessori schools. First, we used the list of Montessori schools provided by the Montessori Census. Using this method, we identified 404 Montessori schools in the Urban Institute data. Second, the Private School Universe Survey (PSS) includes a question

that asks if the school is a Montessori school and an additional question regarding whether or not the school is affiliated with any Montessori organization. We used both methods to identify schools in our data. Our last method of labeling Montessori schools was to note if the school included "Montessori" in the name of the school.[1] In total, we identified 1,465 Montessori schools in the data. It is important to note that we have no method of determining the authenticity of Montessori instruction in any of these schools.

Importantly, the Montessori Census dataset includes a variable to identify Montessori programs that are schools-within-a-school. These are Montessori programs housed inside traditional schools. The dataset identifies 51 such programs. Given that the student demographic data in this analysis is at the school level, we are unable to estimate student demographics for Montessori programs within traditional schools. Therefore, we eliminated those schools from our sample, leaving a sample of 1,414 Montessori programs.[2]

Our final analytical dataset includes almost 76,000 schools across four school types (district, private, charter, and magnet). The sample includes 1,414 Montessori schools: 1,021 private schools, 184 charter schools, 124 district schools, and 85 magnet schools. These schools collectively enroll an estimated 214,446 Montessori students. Among the non-Montessori schools in the dataset are 51,208 district schools, 14,240 private schools, 6,128 charter schools, and 2,873 magnet schools. This analysis is particularly unique in Montessori education research because it includes both public and private schools.

There is no agreed-upon way to measure school segregation, and differences in conceptualizing and measuring segregation have led to conflicting evidence regarding recent levels of resegregation (Reardon & Owens, 2014). To examine this topic, we used a measure of segregation called the Segregation Contribution Index (SCI) developed by Monarrez et al. (2019). The index is a relative measure that quantifies how much an individual school contributes to system-level segregation, adjusting for demographics of the broader student population. This allows for more meaningful comparisons across geographic contexts and school sectors. In contrast, absolute measures, such as the isolation index or benchmarks like "90% minority" thresholds, can be misleading in areas where schools may reflect local populations rather than systemic imbalance (Monarrez et al., 2019, p. 3).

The formal calculation of the SCI is available in Monarrez et al. (2019).[3] The authors begin by calculating each school district's dissimilarity index as follows:

$$Seg = \sum_{i=1}^{N} \frac{p_i |m_i - M|}{2PM(1-M)}$$

In the above equation, $i = 1, \ldots, N$ indexes schools; p_i is the number of students who are enrolled in school i; m_i is the share of school i's students who are Black or Hispanic; M is the share of Black or Hispanic students in the school district as a whole; and P is the total enrollment in the school district. Using the dissimilarity measure, segregation is equal to the proportion of Black or Hispanic students who would need to change schools to create a perfectly integrated school district, in comparison to the share who would have to move to achieve a perfectly integrated school district but starting from a perfectly segregated school district (Monarrez et al., 2019, p. 25).

If we assume the proportion of Black or Hispanic students at school i is equal to $m_i^O \neq m_i$, segregation will equal the following:

$$Seg_i^O = \sum_{-i} \frac{p_{-i} |m_{-i} - M|}{2PM(1-M)} + \frac{p_i |m_i^O - M|}{2PM(1-M)}$$

The first term in the above equation is equal to the segregation caused by every school in the district except school i. The second term is school i's component of the amount of segregation in the school district. If the proportion of Black or Hispanic students in school i is equal to the proportion of Black or Hispanic students in the school district, the term will equal 0 ($m_i^O = M$). To calculate the SCI, we focus on the percentage change in segregation that would occur if we were to change the racial composition of school i to be equal to the proportion of Black or Hispanic students in the district, equal to the following:

$$\varphi_i = \frac{Seg - Seg_i^O}{Seg} = \frac{p_i(|m_i - M| - |m_i^O - M|)}{\sum_i p_i |m_i - M|}$$

The φ symbol is the SCI, or the proportional contribution of school i to the segregation in the school district.

As demonstrated above, a school's SCI depends on three factors. The first factor is the difference in the percentage of Black or Hispanic students in the school and the percentage of Black or Hispanic students across the district in which the school is located. Given that

previous research has found Black and Hispanic students score lower on student standardized achievement exams than do White and Asian students (Musu-Gillette et al., 2017), the Urban Institute (2020, p. 2) measured school segregation as the separation of Black and Hispanic students from Whites, Asians, and students from other racial groups. As noted, because the Urban Institute data report Black and Hispanic students together, we are unable to examine these groups independently. Second, the size of the school is important. The larger the school, the more significant its impact on contributing to segregation in the school district. Lastly, the size of the school district in terms of student enrollment is significant. All else being equal, schools in smaller school districts have larger impacts in terms of contribution to segregation than do schools in districts with high enrollment. In short, the SCI contrasts each school's racial makeup to the demographics of the school district in which it is located. The index compares how the segregation of a school district would change if a given school were to have the demographics of the school district overall versus the school's actual demographics. "The SCI is therefore defined as the percentage decrease in segregation that would take place if the school reflected the [school district's] composition perfectly" (Monarrez et al., 2019, p. 10). The SCI serves as the dependent variable for our multivariate linear regression analyses.

Our analysis includes additional covariates. We examine school type (traditional public district schools, charter schools, magnet schools, and private schools), as previous research indicates racial segregation differs by school sector. We also control for the school's location by comparing rural and suburban districts with urban school districts. School enrollment is the next covariate. This is a key factor, as the size of a school plays an important role in calculating its SCI. Controlling for student enrollment accounts for the fact that high-enrollment schools have a more significant impact on SCI in smaller districts than in larger districts.

Our final covariate is a measure of racial demographics of the neighborhood in which each school is located. For each school in the data, a 1-mile radius was drawn to identify all schools serving the same grade level as the school in question (Monarrez et al., 2019). Then, the proportion of Black or Hispanic students, including those attending the school of interest, was determined within this radius. This estimate is our school neighborhood composition variable. If Monarrez et al. (2019) were unable to identify additional schools offering the same grade level as the school in question, the algorithm increases the radius by 1 mile until a neighboring school is identified or a maximum of 15 miles is reached (p. 5). The school neighborhood composition is an important variable, as the racial makeup of neighborhoods can be quite different from the demographics of school districts as a whole.

Data Analysis Procedures

This analysis uses several approaches to examine the relationship between Montessori education and school diversity. First, we provide descriptive information regarding the average size of Montessori schools and the proportion of Black and Hispanic students who attend them. We also examine this issue by school sector (private, charter, magnet, and district). Second, we provide comparisons between Montessori schools and the enrollment-weighted percentage of Black or Hispanic students in the school district and neighboring schools.

Our next set of analyses shifts from sector-wide averages to examining individual Montessori schools in relation to their district and neighboring school demographics. We present scatterplots that demonstrate how the percentage of Black and Hispanic enrollment for each Montessori school relates to the corresponding percentage of the school's respective school district and neighborhood. We then estimate Pearson correlation coefficients (PCC), both overall and by school sector, to assess the extent to which Montessori schools reflect the racial demographics of their school districts and nearby schools. The PCC quantifies the strength and direction of a linear relationship between two variables, with values ranging from -1 to 1.

One limitation of the raw comparisons between percentages of Black and Hispanic students in each Montessori school and their districts or neighboring schools is the vast differences in school size. In low-enrollment schools, racial identity of a small number of students can substantially impact the proportion of students of color in the school. As we show, Montessori schools, especially private ones, are generally smaller in terms of student enrollment than are non-Montessori schools. To account for this, and following Debs (2016), we performed a series of chi-squared tests to examine if there is a statistically significant difference between a school's percentage of Black or Hispanic students and its school district. For each Montessori school, we calculate the expected number of Black and Hispanic students the school would have if it were to reflect the demographics

Figure 1

$$\varphi_{ij} = \alpha_j + \beta_1 Mont_{ij} + \beta_2 Suburb_{ij} + \beta_3 Rural_{ij} + \beta_4 Private_{ij} + \beta_5 Charter_{ij} + \beta_6 Magnet_{ij} + \beta_7 \ln(Enrollment_{ij}) + \beta_8 (\%\ Black/Hispanic\ Neigh.)_{ij} + \alpha_j + \epsilon_{ij}$$

of its district. These estimates are then compared with the actual student composition of the Montessori school. Using these numbers, we calculate a chi-squared value for each school. Given that the critical value for a chi-squared test with one degree of freedom and a significance level of 0.05 is 3.841, we label each school with a chi-square value of less than 3.841 as not significantly different from the district's demographics.[4] We then perform the same set of analyses comparing the diversity of Montessori schools to their neighboring schools.

Our final set of analyses pertains to our third research question: How is the presence of Montessori programs in schools related to the level of racial segregation within school districts, and how does this differ by school type? To answer this question, we estimate a set of linear regressions predicting a school's Segregation Contribution Index (SCI).

Following Monarrez et al. (2019), we estimate multiple linear regressions. Our main model for this analysis is listed in Figure 1.

The φ_{ij} notation represents the SCI for school i in school district j.[5] Our main independent variable is a Montessori indicator variable. The other regression coefficients capture the relationship between the control variables and SCI. β_7 reflects the correlation for the natural log of school enrollment. The α_j is a school district-by-grade level fixed effect, and ϵ_{ij} is the school-level error term. Standard errors are clustered at the school district level, and the observations are weighted by enrollment. To examine differences between Montessori and non-Montessori schools by sector, we estimate an additional regression with an interaction between the Montessori variable and the sector variables. The modeling strategy is quite powerful, as it creates comparisons between Montessori schools and non-Montessori schools located in the same school district, serving the same grade level, with similar school enrollments, of the same school type, and in neighborhoods that have a similar percentage of Black or Hispanic students. Multiple models are estimated to examine how the Montessori coefficient changes with additional covariates.

Results

Characteristics of Montessori Schools and Students

Our first analysis examines the characteristics of Montessori programs. The results are presented in Table 1. The mean student enrollment for Montessori schools is 152 students, while the median school size is 72. One can see substantial variation in mean school size by sector. While district and magnet Montessori schools average more than 400 students per school, the mean enrollment for Montessori charter programs is 267, and only 73 students for private Montessori schools in the sample. As is examined more fully below, the relatively small enrollments of Montessori programs lowers the impact these programs have on within-school district segregation, holding other factors constant.

The data allow us to examine our first research question: What is the proportion of Black or Hispanic students in Montessori schools, both overall and by school type? Approximately 37% of Montessori students in our sample are Black or Hispanic, lower than the 46% Debs (2016) reported in a study of 300 whole-school Montessori programs. A study of 44 public Montessori programs in South Carolina programs estimates 41% of Montessori students are Hispanic or Black (Fleming & Culclasure, 2024). Student racial demographics significantly vary by Montessori school sector. We estimate 60% of magnet Montessori students, 50% of district Montessori students, and 34% of charter Montessori students are Black or Hispanic. Our estimates show Black or Hispanic students make up only 17% of enrollment in private Montessori schools.

How Montessori Schools Compare to Non-Montessori Schools

Table 1 also allows for comparisons between Montessori and non-Montessori schools across school types. As for school size, non-Montessori schools are consistently larger than Montessori programs. One reason for this could be that many Montessori schools target younger students, whereas high schools have larger enrollments on average. Similar trends are evident across

Table 1
Comparisons between Montessori and Non-Montessori Schools by School Type

	Total		District		Magnet		Charter		Private	
	Mont.	Non-Mont.	Mont.	Non-Mont.	Mont.	Non-Mont.	Mont.	Non-Mont.	Mont.	Non-Mont.
Enrollment	152	532	424	616	450	834	267	468	73	197
	72	*445*	*405*	*513*	*366*	*613*	*218*	*365*	*47*	*122*
	(195)	(466)	(203)	(444)	(287)	(631)	(220)	(533)	(84)	(254)
% Black/ Hispanic	37%	47%	50%	46%	60%	63%	34%	60%	17%	23%
	(30)	(32)	(28)	(31)	(25)	(27)	(27)	(33)	(20)	(27)
% Black/ Hispanic District	49%	47%	51%	45%	62%	58%	43%	58%	44%	48%
	(24)	(26)	(24)	(26)	(18)	(21)	(24)	(24)	(24)	(24)
% Black/ Hispanic Neigh.	46%	47%	50%	45%	62%	62%	42%	60%	36%	38%
	(27)	(29)	(27)	(29)	(23)	(25)	(29)	(29)	(24)	(26)
# of Schools	1,414	74,449	124	51,208	85	2,873	184	6,128	1,021	14,240

Note: Means are listed first, medians are in italics, and standard deviations are in parentheses. Schools-within-schools are excluded. The % Black/ Hispanic, % Black/Hispanic in the district, and % Black/Hispanic in neighborhood schools are weighted by enrollment. "Mont." refers to Montessori, "Dist." refers to the surrounding school district, "Neigh." refers to neighborhood schools in close geographic proximity.

school sectors, as average enrollment in district and magnet schools is larger than enrollment in charter and especially private schools.

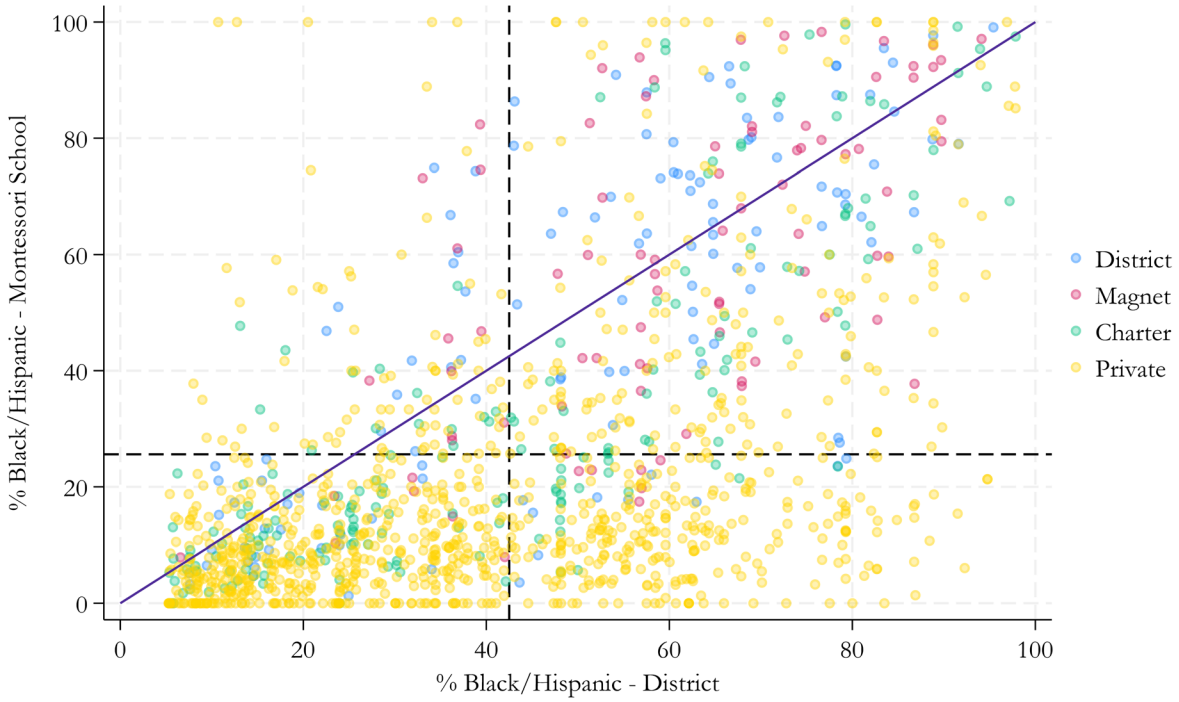
Racial makeup of Montessori students to non-Montessori students is also compared in Table 1. The overall proportion of Black and Hispanic students in the non-Montessori student population is 10 percentage points higher than in Montessori schools. The differences by Montessori status are relatively small for district and magnet schools. However, Black or Hispanic students are underrepresented in Montessori programs by six percentage points for private schools and 26 percentage points for charter schools. While these findings are suggestive, they are limited by the fact that schools are not randomly distributed across the country, and this is particularly true of Montessori programs. These raw comparisons do not account for local contexts.

To provide more meaningful comparisons and examine our second research question, we used data from the Urban Institute to compare Montessori programs and demographics of school districts in which they are located. As seen in Table 1, district and magnet Montessori schools closely mirror the percentage of Black and Hispanic students in their school districts overall. While non-Montessori charter schools are quite similar to their districts, Black or Hispanic students are underrepresented in Montessori charter schools by nine percentage points as compared with school district averages. Black or Hispanic students are significantly underrepresented in both Montessori and non-Montessori private schools as compared with the overall district demographics in which those schools are located.

In light of racial residential segregation that can occur within school districts, a more thorough investigation into how school demographics contrast with those of neighboring schools is necessary. Table 1 presents the mean and standard deviations for the percentage of Black or Hispanic students in neighboring schools for each Montessori and non-Montessori school sector. As for district schools, the percentage of Black or Hispanic students in Montessori schools is very similar to the percentage of Black or Hispanic students in neighboring schools. The percentages are also quite similar for magnet Montessori schools. Black or Hispanic students are underrepresented in Montessori charter schools as compared with neighboring schools. Finally, approximately 17% of students enrolled in private Montessori schools are Black or Hispanic, whereas Black or Hispanic students make up almost 36% of student enrollment in neighboring schools. Non-Montessori school demographics are generally quite similar to the school neighborhood composition, except in private schools, in which 23% of non-Montessori students are Black or Hispanic versus a school neighborhood composition of 38% Black or Hispanic enrollment.

These contrasts provide better comparisons of student enrollment in Montessori versus non-Montessori schools than the raw differences between the percentage

Figure 2
Black or Hispanic Enrollment in Montessori Schools versus District Schools



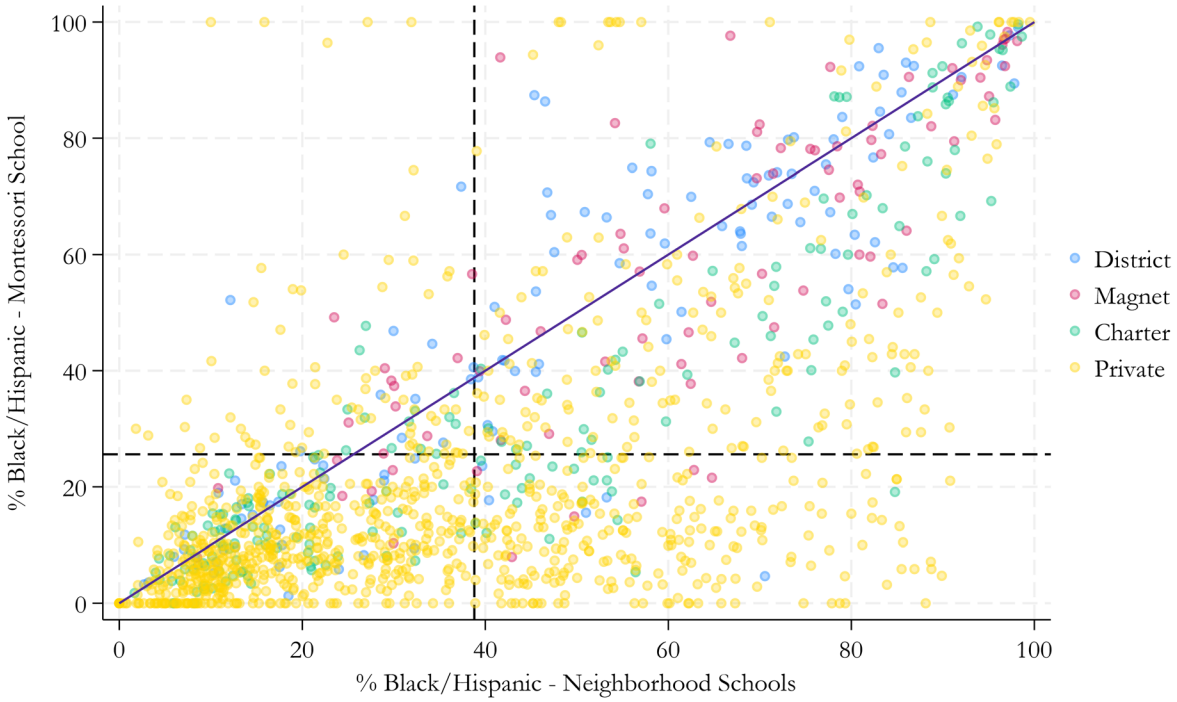
of Black or Hispanic students in Montessori schools versus non-Montessori schools across the country. Within-district and neighborhood contrasts provide a more representative picture of the differences between these two types of schools. However, by averaging across these variables, it is not possible to examine how each school differs from its respective district and neighborhood demographics. We account for this challenge in the analyses below.

We provide school-level comparisons in Figure 2. It is a scatterplot of each Montessori school's percentage of Hispanic or Black enrollment versus the percentage of Hispanic or Black students attending schools in the same school district. Each dot on the figure is a Montessori school, and the color of the dot reflects the type of Montessori school. The unweighted mean number of Black or Hispanic students who attend Montessori schools and other schools in the district are denoted with dashed lines from the y-axis and x-axis, respectively. Schools located on the 45-degree line have racial demographics identical to their school district.

Overall, the correlation between these two variables is 0.56 (p-value < 0.001), which is evidence that Montessori schools with higher proportions of Black or Hispanic enrollments are located in school districts with higher proportions of Black or Hispanic students. When examined by school type, we find the correlation between the racial demographics of Montessori schools and their school neighborhood composition is stronger for charter Montessori schools (Pearson's r = 0.81, p-value < 0.001), district Montessori schools (Pearson's r=0.73, p-value < 0.001), and magnet Montessori schools (Pearson's r = 0.63, p-value < 0.001) than for private Montessori schools (Pearson's r = 0.43, p-value < 0.001). We estimate 81% of Montessori schools in the dataset have a lower percentage of Black or Hispanic students than school district averages. This is evident in Figure 2, as most observations are below the 45-degree line. While approximately 45% of both district and magnet Montessori schools enroll a higher proportion of Black or Hispanic students as compared with school district averages, only 22% of charter Montessori schools and 13% of private Montessori schools do likewise.

Figure 3 presents a similar comparison of Montessori schools and schools that share the same neighborhood. The correlations between demographics of Montessori schools and their neighboring schools are higher than those between Montessori programs and their school districts. Overall, the correlation in Figure 3 is estimated to be 0.68 (p-value < 0.001). For district, magnet, and charter Montessori schools, the correlations with their neighboring schools are all above 0.80 (p-value < 0.001), whereas it is 0.53 for private Montessori schools.

Figure 3
Black or Hispanic Enrollment in Montessori Schools versus Neighborhood Schools



These comparisons do not account for the fact that small changes in student demographics can largely impact low-enrollment schools. Chi-squared tests adjust for school size and identify which schools have statistically significantly different percentages of Black or Hispanic students as compared with their district or neighboring schools (see Table 2). We estimate 407 (29%) of Montessori schools have proportions of Black or Hispanic students that statistically are not significantly different than the proportion of Black or Hispanic students in the district. Fifty-nine percent of Montessori schools have a lower proportion of Black or Hispanic students as compared with their school districts, whereas 12% of Montessori schools have a higher percentage. Across school type, district Montessori schools are about as likely to have Black or Hispanic students underrepresented (43%) as overrepresented (42%). Magnet, charter, and private Montessori schools are more likely to have enrollments in which Black or Hispanic students statistically are significantly underrepresented than overrepresented. Note that private schools are the sector in which the highest percentage of Montessori schools (32%) are not significantly different from the district. This is partially explained by smaller school sizes among Montessori private schools, so finding statistically significant differences is less likely.

In comparisons between demographics of Montessori programs and neighboring schools, Montessori schools are more similar to their neighboring schools than to the district as a whole. Overall, 547 (39%) of Montessori schools have a percentage of Black or Hispanic students statistically not significantly different than the demographics of neighboring schools. The value ranges from 29% for Montessori magnet schools to 42% for private Montessori schools. The between-sector trends are essentially the same when comparisons are made with neighboring schools. District Montessori schools are about equally likely to have Black or Hispanic students underrepresented or overrepresented, and magnet, charter, and private Montessori schools are more likely to significantly under-enroll Black or Hispanic students.

Our regression results, based on ordinary least squares (OLS), are presented in Table 3. Our models follow the approach used by Monarrez et al. (2019) in a study of schools' Segregation Contribution Index (SCI). All of our regressions include school district by grade level fixed effects. This means the relationships identified

Table 2
Chi-Square Analysis of Black/Hispanic Enrollment in Montessori Schools versus District and Neighborhood Schools

	Total		District		Magnet		Charter		Private	
	vs. Dist.	vs. Neigh.	vs. Dist.	vs. Neigh.	Vs. Dist.	vs. Neigh.	vs. Dist.	vs. Neigh.	vs. Dist.	vs. Neigh.
Black/Hispanic Underrepresented in Mont. Schools	839 (59.3)	702 (50.5)	53 (42.7)	43 (34.7)	41 (48.2)	38 (44.7)	113 (61.4)	105 (57.1)	632 (61.9)	516 (51.8)
Not Significantly Different	407 (28.8)	547 (39.4)	19 (15.3)	44 (35.5)	14 (16.5)	25 (29.4)	46 (25.0)	63 (34.2)	328 (32.1)	415 (41.6)
Black/Hispanic Over-represented in Mont. Schools	168 (11.9)	141 (10.1)	52 (41.9)	37 (29.8)	30 (35.3)	22 (25.9)	25 (13.6)	16 (8.7)	61 (6.0)	66 (6.6)
Total	1,414 (100.0)	1,390 (100.0)	124 (100.0)	124 (100.0)	85 (100.0)	85 (100.0)	184 (100.0)	184 (100.0)	1,021 (100.0)	997 (100.0)

Note: Frequencies are displayed with column percentages in parentheses. Chi-square tests with $p<0.05$ are used to determine statistically significant differences. "Mont." refers to Montessori, "Dist." refers to the surrounding school district, "Neigh." refers to neighborhood schools in close geographic proximity.

in our regressions reflect comparisons between schools within school districts serving the same grade levels (elementary, middle, or high school). Our first model examines the relationship between our Montessori school indicator variable and the SCI, controlling for school type and location (suburban and rural versus urban). The results indicate Montessori schools have an SCI that is 1.3 percentage points lower than non-Montessori schools, meaning Montessori schools have a smaller contribution to a district's racial segregation than do non-Montessori schools.

Our second regression includes student enrollment as a covariate. The Montessori coefficient changes signs to 0.006, and it is statistically significant.[6] Given that Montessori schools tend to have lower enrollments than non-Montessori schools, once this factor is controlled for, the correlation between the Montessori variable and SCI shifts.

Our final model in Table 3 includes the percentage of Black or Hispanic students who attend schools in the same neighborhood as the observed schools. This regression creates comparisons between schools in the same district, that serve the same grade level, with similar enrollments, and located in racially similar neighborhoods (Monarrez et al., 2019, p. 13). We find Montessori schools have a 0.8 percentage point higher SCI than non-Montessori schools. Montessori schools contribute more to within-district school segregation than non-Montessori schools do. While this difference is not substantively large, it is statistically significant. To understand the magnitude of this difference, we estimate the same model with imputed mean values for all the variables. The expected SCI for a Montessori school is 12.7%, so the school accounts for almost 13% of segregation in the district after adjusting for variables such as school size. The expected SCI for a similar non-Montessori school is 12.0%. Given that the Montessori coefficient is 0.008, we estimate 6.3% (0.008/0.127) of that school's SCI is due to its Montessori status.

Further, we find that private schools have an SCI four percentage points higher than that of traditional district public schools. Charter schools have an SCI 1.8 percentage points higher than that of traditional district public schools, holding the other factors constant. These results are similar to an earlier evaluation of SCI (Monarrez et al., 2019) and are consistent with previous research findings that private and charter schools may exacerbate school segregation (e.g., Alcaino & Jennings, 2020; Betts & Fairlie, 2001; Frankenberg et al., 2025). We also find suburban and rural schools have lower SCIs than do urban schools after controlling for school size and school neighborhood composition.

We estimate an additional regression based on our preferred model (Model 3) that included an interaction between the Montessori variable and school type to identify which Montessori schools may be contributing more to intradistrict school segregation.[7] An average marginal effects plot is presented in Figure 4.

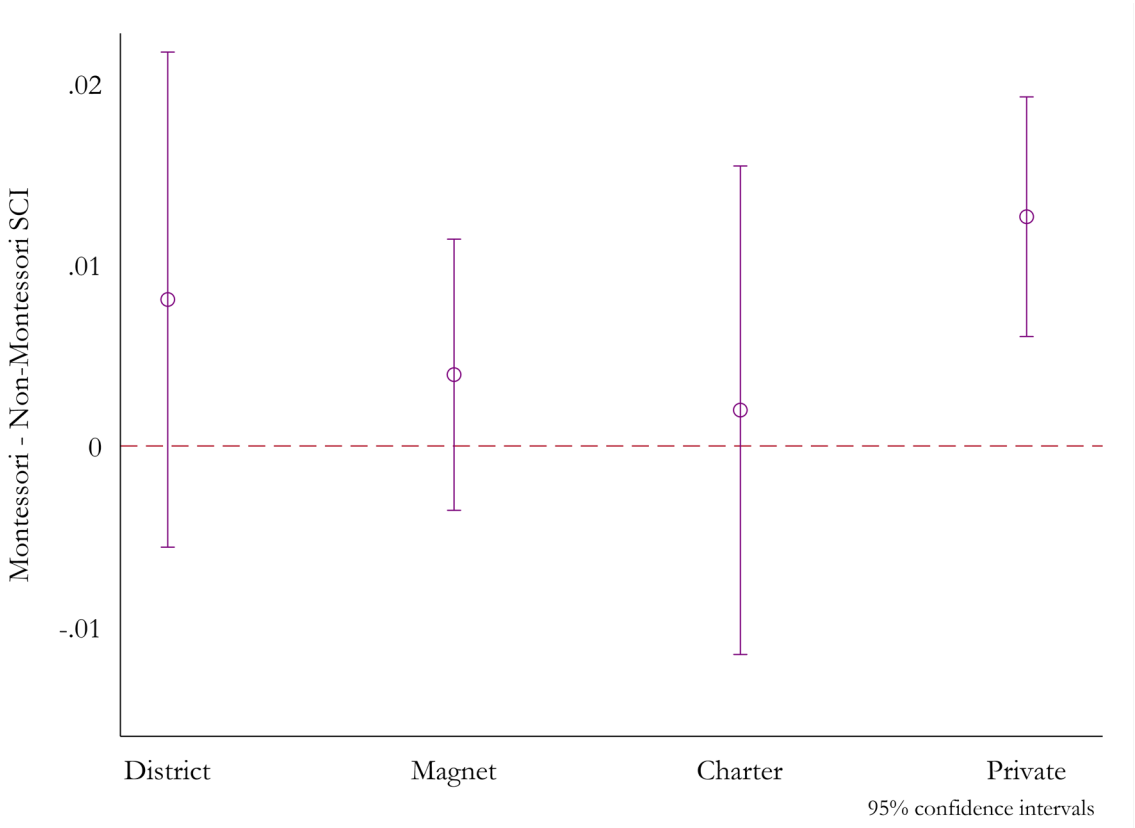
Comparisons are made within school sector, so the figure presents the difference in average SCI between

Table 3
Regressions Predicting a School's Segregation Contribution Index

VARIABLES	(1)	(2)	(3)
Montessori School	-0.013***	0.006**	0.008***
	(0.003)	(0.003)	(0.003)
Private	-0.022***	0.034***	0.040***
	(0.002)	(0.005)	(0.004)
Magnet	-0.001	-0.002	-0.003
	(0.002)	(0.002)	(0.002)
Charter	-0.004	0.018***	0.018***
	(0.003)	(0.003)	(0.004)
Suburban	-0.005**	-0.006***	-0.006***
	(0.002)	(0.002)	(0.002)
Rural	-0.012***	-0.010***	-0.007***
	(0.003)	(0.003)	(0.003)
Student Enrollment		0.041***	0.043***
		(0.003)	(0.003)
% Black/Hispanic Neigh.			0.035***
			(0.004)
Constant	0.127***	-0.142***	-0.170***
	(0.001)	(0.022)	(0.022)
Observations	106,730	106,730	106,273
R-squared	0.716	0.737	0.737
Grade Level by School District Fixed Effects	Yes	Yes	Yes

**** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered by school district. Observations weighted by enrollment. "Neigh." refers to neighborhood schools in close geographic proximity.*

Figure 4
Difference in Segregation Contribution Index between Montessori and Non-Montessori Schools by Sector



Montessori schools and non-Montessori schools for each school type. The coefficients are positive for each, so Montessori schools have higher SCIs than do non-Montessori schools regardless of sector. However, this difference is only statistically significant at the 0.05 level for private schools. Montessori private schools have an SCI 1.3 percentage points higher than that of non-Montessori private schools. To get a sense of the magnitude of this difference, we imputed the mean values for all the variables. Adjusting for school size and other covariates, the expected SCI for a private Montessori school is 16.8%, whereas it is 15.5% for a non-Montessori private school. The Montessori status of the private school accounts for 7.5% (0.0126/0.168) of that school's SCI, on average.

Discussion

This study offers new insight into the relationship between Montessori education and school segregation. By examining traditional public, charter, magnet, and private Montessori schools, our analysis provides a broader and more comprehensive perspective than that of previous research. Furthermore, our study provides apples-to-apples comparisons by comparing within school districts and controlling for the racial makeup of neighborhoods.

Our analysis of more than 1,400 Montessori schools estimates Black or Hispanic students comprise about 37% of Montessori student enrollment in the United States. While racial demographics of district and magnet Montessori schools generally mirror demographics of district and neighboring schools, Black or Hispanic enrollment in charter and private Montessori schools is lower than that of district and neighborhood averages and lower than that of non-Montessori charter and private schools. These results are broadly consistent with previous work that finds while many Montessori programs are quite diverse, they often have higher proportions of White students than do other schools in the district (Brown, 2016; Debs, 2016; Fleming & Culclasure, 2024). We estimate Black or Hispanic students are underrepresented in 59% of Montessori schools as compared to district averages, and in 51%

of Montessori schools as compared to nearby schools. These estimates are remarkably similar to those of Debs (2016), who found 58% of public Montessori programs have a statistically significant lower enrollment of students of color than that of school district averages. We estimate multiple regressions predicting each school's Segregation Contribution Index (SCI) to examine the relationship between Montessori education and within-district school segregation. We find Montessori schools, on average, contribute more to within-school district racial segregation than non-Montessori schools do. This relationship varies by school type, with private Montessori schools showing the highest levels of racial imbalance with fewer Black or Hispanic students enrolled than in non-Montessori private schools. Public Montessori schools, particularly magnet and district programs, tend to be more reflective of district demographics.

Despite Montessori's philosophical emphasis on inclusivity, structural barriers—such as private school tuition, admissions processes, and geographic location—seem to limit access for students of color. The racial differences by school sector likely stem from differences in access, recruitment, and geography. District and magnet Montessori schools may reflect district demographics more closely because they are typically part of broader public enrollment systems and, in the case of magnet schools, were often explicitly created because of segregation concerns. By contrast, private Montessori schools tend to serve smaller, more affluent populations and often charge tuition, which limits access, particularly given persistent racial wealth gaps. Charter Montessori schools, while technically open to all, may be less accessible due to limited transportation options, burdensome application processes, or a lack of targeted outreach, which are some of the factors Debs (2019) identifies in a study of public Montessori programs that may inhibit integration efforts.

This study has several limitations. First, we have incomplete private school data. These data availability issues limit overall generalizability of our study. Second, this study does not measure adherence to the Montessori model. There is no guarantee the schools labeled Montessori in the study actually implement the Montessori model with fidelity. Third, our analysis examines only intradistrict racial segregation. While intradistrict segregation is often the focus of these types of analysis because of the legal and political challenges of interdistrict integration efforts, most racial segregation occurs between—rather than within—school districts (Reardon & Owens, 2024; Stroub & Richards, 2013). Fourth, we are unable to examine racial integration at the class or peer group level. Even within a racially diverse school, students may still be racially segregated due to tracking or other policies. Fifth, our analysis is limited to Black or Hispanic segregation only. Not only are we unable to examine segregation between other racial groups, but our data also do not allow us to examine Black and Hispanic students separately. Lastly, our study does not include school-within-school Montessori programs. Given that we could not determine the demographics of students in these programs, they are excluded from the analysis.

These findings underscore the need for strategies that more intentionally align Montessori practice with its philosophical commitments to equity and inclusion. Today, many ongoing efforts are underway to further integrate Montessori schools. For example, there has been a push to make often expensive Montessori learning materials more accessible to the broader Montessori community. The Montessori Bibliography Online (MBO) includes references to more than 37,000 unique materials, including books, reports, and journals, for Montessori educators to use (Parham, 2022). Montessori teaching training programs also have increased availability across the nation, making it easier for diverse groups of teachers to become certified (Murray & Peyton, 2008). Though this study is unable to identify strategies to create more racially integrated Montessori schools, previous scholars have identified how schools can provide culturally responsive education in Montessori settings (D'Cruz, 2022; Lillard, Taggart, et al., 2023). Further, Debs (2019) provides a variety of best practices for policymakers, school leaders, teachers, and families to promote more inclusive Montessori education. Hopefully, future analyses like what we present here will be able to document impacts of these efforts.

We conclude this analysis by emphasizing that no single study can capture all the complexities of school segregation. While application of the SCI offers valuable insights into school segregation, it remains an imperfect measure. Further, while we included more than 1,400 Montessori schools in our analysis, we could not include all Montessori programs, especially private Montessori schools. We also emphasize that this analysis is not a causal estimate of Montessori education on school segregation. As Monarrez et al. (2019) highlight, an analysis of this type does not prove that closing any particular school or type of school would lead to students being dispersed in a way that would increase integration

in the school district (p. 24). Our findings should be understood as reflecting the structural and geographic context in which Montessori schools operate rather than as evaluations of sectors or individual schools. Our results should be used to inform school officials and the Montessori community about the relationship between Montessori education and school segregation. They could also be used to focus efforts on increasing racial integration in schools throughout the country. Research on the benefits of Montessori education for students of color, combined with its inclusive philosophy, suggests the Montessori model could play a meaningful role in promoting equity and integration. Realizing that potential, however, requires expanding access to Montessori programs, particularly for historically underserved communities.

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Notes

[1] Additional analysis determined some school names were misspelled in the data. Therefore, different derivations of "Montessori" were used to search for and identify Montessori schools by school name in the private school dataset.

[2] When the 51 school-within-a-school Montessori programs are included in the analysis, our results are nearly identical to what we present here.

[3] The Urban Institute (2020) used a geographic information system procedure to determine in which district private and charter schools are located. This is critical, as this location information is not directly available in data from the National Center for Education Statistics, and it allows for comparisons between private/charter schools and the other schools in the same school district.

[4] Since chi-squared tests are sensitive to sample sizes, a school's difference between its actual and expected demographics depends on its student enrollment. For example, assume School A has an enrollment of 1,000 students and is in a district that is 75% Black/Hispanic. School A's percentage of Black/Hispanic students must be between 72% and 78% to not be significantly different from the district average. School B, located in the same district, has an enrollment of 100 students. Its student body must have between 67% to 83% Black/Hispanic students to not be statistically significantly different than its district.

[5] To make more credible comparisons between similar schools, our units of analysis for the regression analyses are determined at the school-by-grade level. This means if a school offers elementary, middle, and high school, the school has three observations in the data, one for each level. Crucially, all variables, including the SCI, are computed within grade level for each school, meaning a school with all three levels could have three different SCIs, proportion of Black and Hispanic students, enrollment, and so forth. While there are 75,863 unique schools in our analysis, there are 106,341 observations for the regression analyses. We refer to these "school-by-grade level observations" as "schools" for ease of interpretation.

[6] Our results are sensitive to how school enrollment is treated in the regression. Given the positive skew of the variable, we used the natural log of school enrollment, following Monarrez et al. (2019). However, when school enrollment is linearly included in the regression, the Montessori indicator variable is negative and statistically significant for both Models 2 and 3. A plot of the residuals and the fitted values shows evidence of nonlinearity, which supports the use of logged enrollment rather than enrollment. When the enrollment variable is converted into quintiles and included in the regression, the results are similar to what is presented in Table 3.

[7] For full regression results, see Table A.1 in the Appendix.

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Appendix

Table A.1
Interaction Model Predicting a School's Segregation Contribution Index (SCI)

VARIABLES	
Montessori School	0.008
	(0.007)
Magnet	-0.003
	(0.002)
Charter	0.018***
	(0.004)
Private	0.040***
	(0.004)
Montessori X Magnet	-0.004
	(0.008)
Montessori X Charter	-0.006
	(0.010)
Montessori X Private	0.005
	(0.008)
Suburban	-0.006***
	(0.002)
Rural	-0.007***
	(0.003)
Student Enrollment	0.043***
	(0.003)
% Black/Hispanic Neigh.	0.000***
	(0.000)
Constant	-0.170***
	(0.022)
Observations	106,273
R-squared	0.737
Grade Level by School District Fixed Effects	Yes

Robust standard errors are in parentheses; observations weighted by enrollment.
**** p<0.01, ** p<0.05, * p<0.1."Neigh." refers to neighborhood schools in close geographic proximity.*

Use of Case Studies in Montessori Leadership Preparation Programs

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Keywords: *school leadership, Montessori leadership, reflective practice*

Abstract: This paper examines the impact and relevance of the use of case studies as a teaching and learning tool in Montessori leadership programs. Frequently used as learning tools in educational leadership preparation programs, selected case studies were limited to those in Montessori leadership and language. Surveys and interviews with graduate students and program faculty were conducted to understand the relevance of case studies in coursework and to provide implications for further refinement of their use. Results suggest certain elements of case studies can enhance learning theory and serve as springboards to practice. Maria Montessori advocated for reflective practice; therefore, we are extrapolating that case studies may be a powerful and effective connection of scholarly study of theory to classroom practice. However, these benefits may not be well-clarified or highly valued in Montessori leadership coursework. With use of case studies in Montessori leadership coursework, an opportunity exists for faculty to reflect on strategies for using case studies and best practices. Content specific to Montessori settings may further support the usefulness and effectiveness of case studies and their impacts on student learning in Montessori leadership programs.

Use of case studies is frequently applied as a strategy for teaching and learning in graduate programs in leadership. Post-COVID leadership preparation programs have used case studies as a meaningful and productive way to introduce students to problems of practice as well as allow opportunities to apply decision-making to their emerging leadership. Case studies enhance and fill gaps about leadership challenges that leaders may not have exposure to in their own settings (Leggett & Smith, 2022; Robertson & Muirhead, 2017). Case studies have historically been used in business, law, and medical schools, as well as other graduate-level programs. Their purpose has been to teach critical thinking skills by asking students to analyze a situation, identify key problems, and develop solutions or recommendations (Rahayu & Zutiasari, 2022). Particularly in school leadership preparation programs, case-based instruction is widely used to challenge students to solve multifaceted problems, with the purpose of transferring theory to practice (Vennebo & Aas, 2023). Self-reflection is a vital component of the leadership role according to Maria Montessori, who said, "Those who direct others must themselves be transformed. No one can ever be a leader or a guide who has not prepared for that work" (as cited

in Bennetts & Bone, 2020, p. 5). Reflective leaders can improve their effectiveness and influence the reflective practices of other adults in their school communities (York-Barr et al., 2016). Robertson and Muirhead (2017) concluded that purposefully designed case studies support critical reflection in higher education. We perceive the use of case studies in Montessori leadership preparation courses as an extension of our earlier work (Damore & Rieckhoff, 2021) and as an opportunity for self-reflection on the part of program faculty and students.

We frequently utilized case studies from our graduate leadership courses and most recently in teaching a course designed specifically for Montessori leadership. Our previous research and focus on reflective leadership's impact on school leaders' roles as instructional supervisors (Damore & Rieckhoff, 2019, 2021; Rieckhoff & Damore, 2017) led us to an inquiry about the use of case studies as a form of leadership learning and reflection in our assignments for students. Previously, we concluded that self-reflection is critical to a Montessori school leader's success. Self-reflection initiates a process that empowers leaders to model and influence reflective practices, with direct effects on teacher reflection and school improvement (Damore & Rieckhoff, 2021). Reflection represents a key component in school improvement models. Leadership for school improvement is expected of all administrators, including those who lead Montessori schools (American Montessori Society [AMS], 2018; National Policy Board for Educational Administration [NPBEA], 2015). As stated in the abstract, we are extrapolating that case studies may be an extension of scholarly study of theory to connect applied practice. Several researchers connect the value of reflection with the teaching strategy of case studies in teacher education (Liu & Chen, 2019; Ulvik et al., 2022).

We believe case studies are a natural extension of reflection about practice as advocated by Montessori (Damore & Rieckhoff, 2021). However, the benefits may not be well understood and may require further examination. Robertson and Muirhead (2017) concluded that purposefully designed case studies support critical reflection in higher education.

Research Questions

The purpose of the study was to explore the use and effectiveness of case studies as teaching and learning tools in Montessori leadership programs. Two research questions guided this study: 1) How does the use of case studies impact teaching in Montessori leadership courses? 2) How does the use of case studies impact adult learners in Montessori leadership courses?

Literature Review

Defining "Case Studies"

Case studies are used across graduate or post-baccalaureate programs as a form of instruction. Cases range from basic "what would you do?" types of questions, to more elaborate and detailed analyses and examinations. The case method is based on two terms—"case" and "study"—which form a single field, "case study" (Schiano & Andersen, 2017). Therefore, the purpose of such a method is to analyze a specific situation that arises under certain conditions, and to choose, with subsequent analysis, a practical solution for the proposed problem (Chumak et al., 2022). Chumak et al. (2022) identified two types of case studies for use in teaching: Harvard (American) and Manchester (European). The first uses larger case studies to find solutions, and the Manchester model focuses on smaller case studies. Yet both focus on practical solutions, based on artificially created or real-life situations, for the problem-solving and reflective process. Case studies offer learners a way to solve problems and assimilate special knowledge (Chumak et al., 2022).

In one example, a leadership management program centered on active learning and critical thinking skills, and concluded that utilizing case studies results in the active learning and improved critical thinking skills students need in leadership proficiencies (Mahdi et al., 2020). The researchers also found that critical thinking questions on course exams challenged students, thus concluding the essentiality of using case studies as a teaching strategy. Critical thinking is a highly researched area, such as with case-based learning (CBL). In CBL classrooms, students typically work in groups on case studies, stories involving one or more characters or scenarios. Kaddouro's 2011 examination of CBL and traditional didactic teaching (lecture-based teaching) found that participants who learned through CBL performed better in the total critical thinking score and all critical thinking subscales than did traditional program participants.

Though we describe above the benefits of using case studies, our review of the extant literature indicates there are challenges to using case studies as they do not alone produce intended learning outcomes. Nilsson (2017) suggests the context of a case study may not align with students' personal experiences and thereby impact the intended learning outcome. Additionally, numerous case

studies are lengthy and with clear objectives not always provided. This work informs the role of the instructor and the need for them to understand, take responsibility for, and implement specific techniques to successfully guide and maintain student engagement. Responsibilities of the instructor include ensuring students feel safe, presenting a case study with clarity, and stating clear guidelines (Nilsson, 2017). Responsibility then turns to the participant's level of accountability, preparedness, and willingness. Nilsson concluded that a combination of these strategies must be taken into consideration when teaching and learning with case studies, thereby indicating accountability on the parts of both teacher and learner.

Nath (2005, p. 2) reported an increasing awareness in the field when applied to education, noting that teachers who are ill-prepared for the "ambiguity of real-life classrooms" often leave the teaching profession and case studies might help fill this gap. Although field experiences are intended to provide realistic views of the complexities of classrooms, they might not always meet this goal. Instructors may want to prepare students for specific experiences, such as teaching in an urban classroom. Field placements may not support these goals or connect specifically to this learning. In contrast, a scenario-based case study can be designed to pinpoint a specific purpose, and as such, higher education faculty are increasing the use of constructed situational scenarios or case studies. These vignettes are typically followed by discussion and reflection opportunities, and can provide students experiences that are not possible with lectures and field work.

Case studies are widely used in educational leadership programs to prepare building or district level leaders (Darling-Hammond et al., 2010). The study of leadership principles may need the augmentation of case studies to connect theory to practice. Robertson and Muirhead (2017, p. 335) explain, "Educational leadership is a human-to-human interaction with little regularity in day-to-day activities." As mentioned, Vennebo and Aas (2023) emphasize that case-based instruction is used to challenge students to multifaceted problems, transferring theory to practice. A review of three well-known case study books (Hanson, 2008; Kowalski, 2008; Midlock, 2011) used for preparing educational leaders revealed the themes and topics most frequently presented. Typically aligned to leadership standards, most cases focus on the following topics: leadership, employee relations and human resources, conflict management, student conduct, safety, ethics, governance, and law and finance. We present a rationale for using case studies—to provide a problem-solving, decision-making model or case analysis framework. Cases are often framed around a real-life situation describing what has occurred, with consideration for ethical factors. These case study books emphasize reflection and ethical decision-making. As described by Kunselman and Johnson (2004), in Liu and Chen (2019, p. 549), "it is through the case discussion that students find themselves engaging in an active learning environment, which allows them to freely incorporate educational theories in real life settings."

Although the focus of educational leadership can be expansive and elusive, from instructional leadership to organizational management, effective leaders appear to share some common dispositions that may not be easily learned through scholarly study of theory. Such dispositions include core values, open-mindedness, and optimism in challenging situations (Robertson & Muirhead, 2017). These dispositional areas can be addressed more effectively through case study discussion and analysis.

Theoretical Framework

Critical, collaborative inquiry is the combining of study, or theory, with action to promote school improvement, with a specific commitment to uniting educators to "think together about their underlying interests and ideologies" toward the goal of creating quality educational experiences for all students (Clark, 1999, p. 213). This inquiry-based thinking was the focus of our earlier research (Damore & Rieckhoff, 2019, 2021). In regards to teaching in a Montessori leadership preparation program, the use of case studies emerged as a tool to further facilitate critical, collaborative inquiry among graduate students and to continue our research. Houchens and Keedy (2009) espoused the framework of *theories of practice*, a process emphasizing the need for self-reflection in order to consider other perspectives as principals lead communities toward reflective practice in their schools. Houchens et al. (2017) further extended the research, suggesting school leaders' effectiveness requires subsequent willingness to alter their assumptions, values, and beliefs as they address complex problems and issues. Within the context of theories of practice, the individual contemplates alternative perspectives, which results in new action or direction. We situate case studies as an opportunity for Montessori leadership program faculty, and graduate

students attending such programs, to further reflect on their personal "theories of practice" and willingness to change their beliefs, and thereby take actions to improve their skills and practices in teaching and learning.

Design of the Study

This multi-method study relied on grounded theory to collect and analyze data and then posit our theory based on the patterns and insights within the data. The sampling strategy involved adult learners who had taken or taught a Montessori leadership course. They were invited to participate by informing on their experiences using case studies in their graduate courses and school-based experiences. Data was collected through electronic surveys and one-to-one interviews. Data analysis included a review of survey results and interviews.

Methods

This work is grounded in reflective practice for educators situated in courses with case studies in Montessori leadership preparation courses. The purpose of the study was to explore the use and effectiveness of case studies as teaching and learning tools in Montessori leadership programs. As noted, two key questions guided this study: 1) How does the use of case studies impact teaching in Montessori leadership courses? 2) How does the use of case studies impact student learning in Montessori leadership courses?

Participants

This multi-method study included program faculty who taught in Montessori leadership programs and currently enrolled graduate students in a university-based, doctoral-level Montessori leadership course. We began with identification of program faculty who taught leadership courses in Montessori teacher programs. We searched national Montessori organizational websites, verified information with the respective organizations, and identified 20 program faculty members from 14 Montessori leadership programs. The leadership courses are under the umbrella of Montessori teacher training programs, which are accredited by the Montessori Accreditation Council of Teacher Education (MACTE), which is authorized by the US Department of Education to accredit Montessori teacher education programs. Almost all of the programs are affiliated with a national Montessori organization such as Association of Montessori International (AMI), American Montessori Society (AMS), or International Montessori Accreditation (IMC)/Montessori Foundation (MF), and adhere to organizational and curriculum standards for Montessori leadership preparation. Additional program participants included faculty from the doctoral-level Montessori studies program. Contact information for all program faculty was obtained through the respective programs' websites and online publications.

The second population identified for the study consisted of 13 graduate students (two cohorts) who had attended our Montessori leadership course at a large Midwestern university. Students' contact information was identified with class lists. The researchers taught a doctoral leadership course within a graduate program of Montessori studies. The course was held online, with alternate synchronous and asynchronous sessions throughout a full semester. Each asynchronous week included assignment of a case study to further engage discussion about theory presented the previous week.

Eleven of the 20 faculty members who were e-mailed completed the survey. Eight of 14 graduate students completed the survey. Response rates of 55% for faculty and 57% for graduate students were obtained. This response rate can be attributed to the tailored sampling of the study group, the personalized request from researchers, and added interest from faculty and graduate students to aid our research.

Surveys

The researchers developed survey questions by using standard criteria for question development. Criteria included open-ended questions, specificity, and clarity (Fink, 2002), and were based on previous formal and informal feedback through a pilot survey administered to Montessori program faculty members and graduate students who were not included in the study. Based on their feedback, a few minor modifications were made in the faculty survey, and none were made in the graduate student survey. Appendix A and Appendix B include the survey questions for program faculty and graduate students respectively. Using an anonymous, online survey, we wanted to determine how case studies were perceived and used by both program faculty and graduate students. Program faculty and graduate students were e-mailed surveys. Questions differed slightly between the two surveys, one focused on teaching with case studies and the other on learning with case studies. Numerous questions overlapped in content and intent. In addition,

Table 1.
Demographics—Program Faculty

Demographic	%
Position	
Program director	54%
Program instructor	27%
Guest lecturer	0%
Practicum supervisor	0%
Other	9%
Years in position	
Less than 2 years	9%
2–5 years	18%
6–10 years	27%
More than 10 years	45%
Primary Montessori organization affiliation	
AMI	9%
AMS	45%
MF/IMC	36%
Whole school leadership	9%

Table 2.
Demographics—Graduate Students

Demographic	Percentage
Position	
School administrator	38%
Curriculum director	0%
Lead teacher	25%
TEP program director	13%
TEP program instructor	13%
TEP guest lecturer	0%
TEP program practicum supervisor	0%
Other (TEP instructor and supervisor)	13%
Years in position	
Less than 2 years	13%
2–5 years	13%
6–10 years	38%
More than 10 years	38%
Primary Montessori organization affiliation	
AMI	0%
AMS	88%
MF/IMC	13%
Whole school leadership	0%

a request for an individual interview was included at the end of each survey.

Interviews

Our next step in the research methodology was to conduct follow-up interviews. We again reached out to the two populations—Montessori program faculty and graduate students—who had completed surveys and indicated their willingness to participate in a follow-up interview, which yielded four participants. Due to survey fatigue and brevity of comments that often accompany online surveys, we wanted to further clarify and obtain in-depth understanding with representatives from two samples regarding their perceptions of the use of case studies in their courses. Appendix C includes the interview questions asked of both groups of participants.

Survey Data Analysis

The surveys included quantitative and qualitative responses. Questions ranged from simple demographics to the use of case studies and perception of their effectiveness. The demographic questions asked respondents about their current position, years in the position, and Montessori affiliation. Table 1 provides the demographic information of program faculty, and Table 2 highlights demographic information of graduate students.

To summarize, faculty members served as Montessori leadership program directors (64%) and instructors (27%). The graduate students reported variance in their positions, such as Montessori school administrator (38%), lead teacher (25%), and Montessori Teacher Education Program (TEP) faculty (26%). Program faculty reported 64% in their respective positions for six years to more than 10 years. Graduate students reported 76% in their respective positions for six to more than 10 years.

Interview Data Analysis

The purpose of the semi-structured interviews was to further clarify and obtain in-depth understanding regarding perceptions of the use of case studies from both a faculty and student lens. Using a list of predetermined questions, we conducted the interviews within a month of survey completion. Four of the 19 individuals who completed the survey participated in the interviews (21%). Interviews were conducted with two program directors and two graduate students. The interview questions for the program faculty and graduate students

repeated several survey questions, providing more of a dialogue and asking for examples. An additional question was added to inquire about perceptions of the potential contribution of the use of case studies for mastery of competencies related to administrative leadership. We focused on the verbal narrative between ourselves and each faculty member (Gilbert, 2008). This interviewing method allowed for casual conversation, openness, candor, and spontaneous questions. Four of the 11 survey participants responded to our request for interviews. The four who participated in the interviews verified the survey findings and further enriched our understanding of the use of case studies in their courses.

Findings

Use of Case Studies

Following demographics, the survey question asked, "Do you use case studies in your leadership courses?" with "yes" or "no" answer choices and a stop on the survey for those who chose "no." Seventy-three percent of program faculty and 100% of graduate students responded "yes" and continued with the survey. In the follow-up interviews, program faculty and students reported that case studies are included in their course content either within the course or embedded as part of a learning module of the course. One interviewee, serving in a dual role as a faculty member and student, stated this:

> *I have used case studies as both a student and instructor. As a student in undergrad, grad school, teacher education, and doctoral studies, different courses have leveraged case studies to add practical elements to the topics we are studying. I have always found case studies a beneficial way to practice theoretical skills in a practical application.*

Topics for Case Studies

Program faculty were asked about the topics and case study situations they applied in the leadership courses they taught. This question allowed respondents to check all topics from a preset list the researchers offered. Topic choices were as follows: school leadership, communication, student situations, personnel challenges, parents/community, board governance, curriculum/ including Montessori implementation, professional ethics, connecting theory to practice, conflict resolution, and collaborative leadership. Faculty reports three topics addressed in their case studies 67% of the time: student situations, school leadership, and personnel challenges. Other topics, less often covered in their course case studies, reported at 56% of the time, include board governance, theory into practice, conflict resolution, and collaborative leadership. One respondent added the topic "creating a healthy workplace culture."

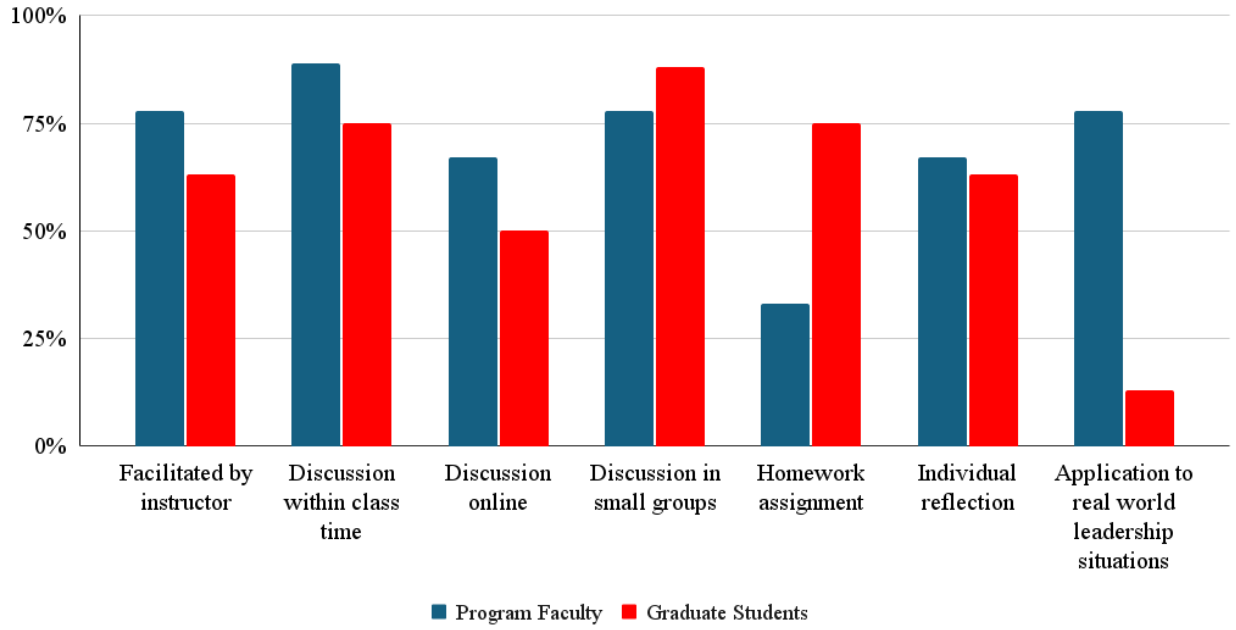
Graduate students were asked the same question about topics/case study situations presented to them in their program. In their survey, a briefer list of topic choices was presented: challenges with student(s), challenges with staff, challenges with parents, challenges with board, and curriculum issues/Montessori implementation. The students report these topics were most addressed in case study format in their coursework: challenges with staff (88%) and challenges with parents (75%). In hindsight, the researchers realize they might have had an improved opportunity for comparisons of faculty and students' responses if the same topic list had been used for both surveys. Yet, both populations identify case studies on personnel/staff challenges as the most covered topic.

Sources for Case Studies

Both surveys featured this open-ended question: "What are the sources for the case studies?" The question was designed to guide researchers to understanding the sources for case studies that Montessori program faculty were using in teaching and graduate students identified for use in coursework. In the survey, the program faculty responded with a range of sources, including case studies privately written and created from personal experience and experiences of others, to demonstrate real-life situations. Other sources were Montessori-specific from Montessori research and publications, and some were written using ChatGPT. Other sources of case studies were non-Montessori studies and articles, with sources such as the Center on the Developing Child at Harvard University and university publications. Listed sources represented authors of various texts, resources, and publications from various institutions and faculty creations. When graduate students were asked the same question about identifying sources of case studies used in their coursework, their responses included "class textbooks, and instructor-led case studies."

In the interviews, participants described the sources of case studies as "being written by instructors based on real events and/or created/developed by AI." Program faculty described their graduate experiences of using cases developed at Harvard and other institutions. This led to their choices to use them later as instructors of graduate courses. Other instructors have used vignettes/stories

Figure 1.
How are case studies used in courses?



from personal experience. One faculty member shared the following: "I teach Classroom Leadership at a TEP, and I use stories from my own experience as a teacher and school administrator to have adult learners practice how they would handle a situation."

A student indicated different sources, sharing this: "Some courses have used case studies found in a textbook; other instructors have used vignettes/stories from their own experiences." In comparison with the program faculty, graduate students seemed to be more specific in listing textbook titles, although some overlap occurred.

How are case studies used in the courses?

Program faculty and graduate students were asked on the survey, "How are case studies used in the course?" Faculty selected from a predefined list, which researchers identified as common practices in use of case studies in teaching leadership concepts. Responses, as shown in Figure 1, included the following: facilitated by instructor (78%), discussion within class time (89%), discussion online (67%), discussion in small groups (78%), homework assignment (33%), individual reflection (63%), and application to real world leadership situations (78%). Graduate students responded to the same question from the same predefined list: "How are case studies used in the courses?" Responses included facilitated by instructor (63%), discussion within class time (75%), discussion online (50%), discussion in small groups (88%), homework assignment (75%), individual reflection (63%), and application to real world leadership situations (13%).

In the interviews, participants were asked about faculty's use of case studies in coursework. One faculty member responded, "We [would] read them ahead of time and then break into groups and discuss. At residency the analysis is more complex, analyzing it in a more complex way."

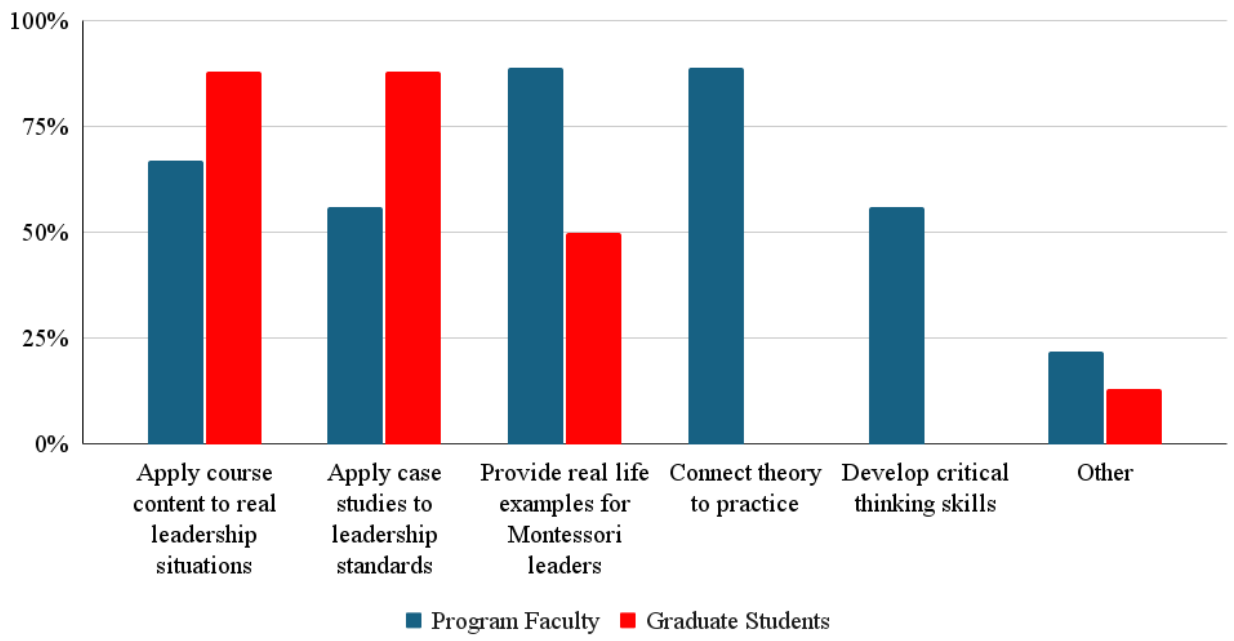
A student replied, "Yes, I have usually had instructors explain that the case studies will allow us to practice skills that we have learned about in the course."

In the surveys, across the two groups there appeared to be closer agreement about use of case studies in small groups and less agreement about perceptions of use for individual reflection and application to real world leadership situations. The interviews gleaned positive feedback about use of case studies, referencing practicing skills learned in class and breaking into small groups for analyzing case studies.

Purpose of Case Studies

As Figure 2 shows, this question was asked on the surveys of both program faculty and students: "What were the purposes of the case studies? (check all that

Figure 2.
What are the purposes of case studies?



apply)." Faculty responded as follows: apply course content to real leadership situations (59%), apply case studies to leadership standards (56%), provide real life examples for Montessori leaders (89%), connect theory to practice (89%), develop critical thinking skills (56%), and other (22%). This was one faculty member's comment: "develop deep awareness, collaboration and seeing situations from differing perspectives."

Graduate students' responses were as follows: apply course content to real leadership situations (88%), apply case studies to leadership standards (88%), provide real life examples for Montessori leaders (59%).

In the interviews, the question was modified as such: "Did you find that case studies were useful?" The faculty indicated that case studies are useful, as graduate students must "discern what is noise, what is truly important and what is distracting." One student responded this way: "I have always found case studies useful to my learning. I like to take theoretical to practical applications. I feel that it makes me better prepared in my career to handle situations as they arise."

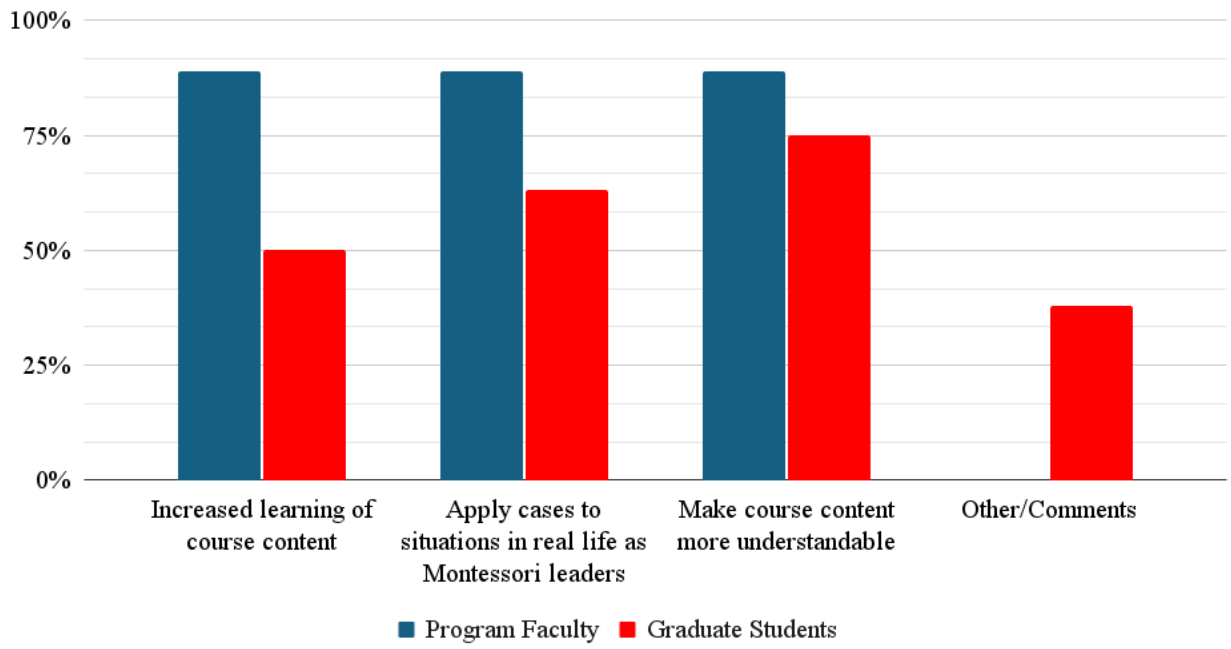
Perceptions on purposes of the use of case studies varied significantly from faculty versus students. On the surveys, students rated the purpose of case studies higher than program faculty did with "application of course content to real leadership situations" and to "leadership standards." Faculty rated the purpose of case studies higher than students did on "providing examples for Montessori leaders." "Connection of theory to practice" was rated high by program faculty, but that choice was not available to students. Although the question was modified from perceived "purpose to use" in the interviews, both faculty and students expressed usefulness with case studies in their coursework.

Student Receptivity to Case Studies

"Are the students receptive to the case studies?" To understand perceptions of program faculty versus students, the question appeared on both surveys with a simple choice of "yes" or "no" and a subsequent open-ended question: "why or why not?" Sixty-seven percent of program faculty responded "yes." Answers to the open-ended question "why or why not?" include these comments from a faculty member: "Most find them [case studies] challenging and thought provoking; they prefer to receive them in advance with a study guide or question framework to prepare for discussion; real world practice; for my students it's often the first time they have participated in a case study and I have mixed results."

The graduate students answered the same question, most responding "yes" (63%), and then commented as to "why or why not?" Comments from students include the following: "some, not all relatable"; "I enjoyed connecting the case studies to my own experiences and enjoyed the

Figure 3.
What do you think students learn from case studies?



discussion with my peers"; and "the case studies helped me better see the application in real life situations."

In the interviews, one faculty member described initial difficulty in introducing case studies but segued into a positive experience:

> *At first, maybe a bit annoying and then some will see themselves or their situation in dysfunctional situations.… The adult students I taught this summer shared that case studies were one of their favorite parts of my Classroom Leadership course. They felt that it prepared them for situations that might arise in their own career and that they had a background understanding of how they might handle that situation.*

A second faculty member responded, "It is sometimes difficult to find appropriate case studies to use in teaching a course." On the question of receptivity, we found mixed perceptions among faculty and students on the "why or why not" of using case studies in Montessori leadership courses.

Student Learning from Case Studies

To understand the perceptions of program faculty versus students, the survey question on student learning—"What do you think the students learn from case studies?"—appeared on both surveys. Researchers offered three choices, a predetermined list. Respondents were told to check all that applied. Faculty responded as follows: increased learning of course content (89%), apply cases to situations in real life as Montessori leaders (89%), make course content more understandable (89%), other/comments (0%).

Students responded as follows: increased learning of course content (50%), applied cases to situations in real life as Montessori leaders (63%), make course content more understandable (75%). Students' survey comments (38%) include the following: "I learned a lot and my understanding increased by seeing the leadership skills (or lack of skill) in a real-life situation; getting to discuss the case studies online in the discussion form and within our group PODs [small groups asynchronous] was really interesting." "While we were discussing each scenario we often came away with different 'takes' on what happened depending on our current roles." "I learned that my perspective as a classroom teacher was sometimes different than the perspective of the heads of school when exploring the different case studies; I found that they were not applicable to my real-life situation, and mostly not at all applicable to Montessori challenges; it would be great to have case studies that are applicable to Montessori settings."

In the interviews, an additional question was added to enhance our understanding of student learning in context with leadership competencies: "Do you think case studies add to the competencies of administrative/leadership?"

One faculty member responded, "Absolutely. Seeing how an adult practices in a low-stakes environment is critical to understanding how they would perform in a more stressful, high-stakes situation."

Another faculty member shared, "They [students] get more confident in how to more systematically tackle a complex problem."

A student shared this perspective: "Many times, in the Leadership course at UWRF [University of Wisconsin – River Falls] during our pod meetings, we shared stories about what was happening in our careers and helped one another brainstorm how to handle the situation."

The data indicated a difference in perceptions between faculty and some graduate students on the learning benefits of case studies in Montessori program coursework. For example, in the survey, a significant difference emerged between faculty perceptions (89%) versus student reporting (50%) about increased learning of course content. The additional interview question and subsequent answers appeared to reinforce that learning through use of case studies includes added competencies of administrative/leadership.

Discussion

Our study included two research questions: *How does the use of case studies impact teaching in Montessori leadership courses? How does the use of case studies impact student learning in Montessori leadership courses?*

Our surveys and interviews led us to new perspectives and findings about use of case studies for teaching and learning in Montessori leadership programs. With the survey responses, program faculty and graduate students alike acknowledged several benefits and challenges of using case studies for coursework. In the surveys, they identified topics addressed in the case studies assigned. Their responses aligned with our review of literature on benefits and challenges of case studies used in higher education and educational leadership programs (Chumak et al., 2022; Mahdi et al., 2020). A review of three well-known case study books (Hanson, 2008; Kowalski, 2008; Midlock, 2011) includes many of the same topics our survey participants identified, such as school leadership as well as communication and challenges with staff, students, and parents. Sources for the case studies ranged from teacher-generated cases to material presented from assigned texts.

Across the two groups of survey participants, there appeared to be closer agreement about the use of case studies in small groups and less agreement about perceptions of impact on individual reflections and application to real world leadership situations. Students rated the purpose of case studies higher than did program faculty with application of course content to real leadership situations and application of case studies to leadership standards. Program faculty gave a high rating to the connection of theory to practice. Even though this choice was not available on the survey for students, their comments implied the connection of theory to practice. The purpose of the use of case studies appeared to vary significantly in the perceptions of faculty versus that of students. Referencing application of course content to real leadership situations and to leadership standards, students rated the purpose of case studies higher than did program faculty. Faculty rated the purpose of case studies higher than did the students for "providing examples for Montessori leaders." Connection of theory to practice was rated high by the program faculty, but that choice was not available to the students. On the question of receptivity, we found mixed perceptions among faculty and students on the "why or why not" on the use of case studies in Montessori leadership courses. This may have implications for program faculty and be of more interest in future research.

Different perceptions emerged between program faculty and some graduate students on the learning benefit of case studies in coursework: 89% for program faculty and 50% for students on the question related to "increased learning of course content." An additional interview question and subsequent answers appeared to reinforce that learning through the use of case studies includes the benefit of added learning competencies of administrative/leadership. Perhaps more investigation is warranted, or on a practical level, a closer examination of the methods used by the faculty. Reframing the purpose of case studies with intentionality and assessing case study use in courses may be advantageous in strengthening student perceptions of value and benefit of the use of case studies. As found in the literature review, the responsibility of the instructor is to ensure a clear presentation of the case study and to state clear guidelines (Nilsson, 2017). Then, responsibility turns to the participant's level of accountability, preparedness, and

willingness. Nilsson (2017) concludes that a combination of these strategies must be taken into consideration when teaching and learning with case studies.

Trustworthiness and Limitations

Credibility of data is paramount in research and drawing conclusions. Glesne (2011, p. 49), in *Becoming Qualitative Researchers*, underscores the concept of trustworthiness to increase the credibility of data and findings in qualitative research: "trust the culture and check out your hunches." We acknowledge the limitations and potential biases in this study. One researcher's Montessori background, knowledge, and experience proved helpful in developing the survey and interview questions, yet possibly formed a bias toward the use of case studies for Montessori leaders. Limitations occurred with regard to participants' self-reporting as well as our interpretations as we present the data (Glesne, 2011). The study included a small sample and limited generalizability. For the program faculty and graduate students, variances in roles and participation in various Montessori leadership programs throughout the country might also serve as biases to participant responses. Our survey design and questions might have been improved had we designed the two surveys in direct alignment of the questions we asked. We recognize the small sample size of the interviewees, taking that also into consideration.

Implications

Case studies can provide a powerful tool to elicit discussion and leadership learning via analysis and problem-solving outside of one's own setting. Given the current delivery of coursework through a variety of modalities and often accelerated learning modules, we believe the use of case studies lends a necessary aspect of leadership learning that cannot otherwise be replicated and provides necessary links from theory to practice. The opportunity to merge critical learning and reflection is a key element for both faculty and students. The case study allows student practice in perspective-taking, seeing a problem from another person's perspective, which is part of leadership learning as students move from teacher perspective to leader perspective. According to Galinsky (p. 59), perspective-taking is "the ability to see the world from the perspective of others and is a critical skill for leaders." Perspective-taking involves understanding another's point of view and emotions, whereas empathy requires feeling another's emotions. We believe case studies provide the opportunity for future opportunities to understand this shift from the teacher to the leader perspective. The study left us interested in examining in our future research the concept of perspective-taking on leader reflection.

Maria Montessori advocated reflection about practice, so we are extrapolating that case studies may be a powerful and effective extension of scholarly study of theory to connect applied practice. However, these benefits may not be well clarified or highly valued in Montessori leadership coursework. This conclusion has implications for program faculty when using case studies in these respective programs and courses. Robertson and Muirhead (2017) concluded that purposefully designed case studies supported critical reflection in higher education. We situated the study of the use of case studies as an opportunity for program faculty members to engage in collaborative, critical inquiry and reflect about their personal "theories of practice." (Houchens et al., 2017). We believe the findings might compel Montessori program faculty to more deeply reflect on the effectiveness of using case studies for teaching and learning. As well, we think graduate students might have opportunities to better reflect on their perceptions of the use and value of case studies encountered in their coursework. And the insights would give us, as university researchers and instructors, reflection and improved practice when using case studies.

For practical purposes, we have learned it may be optimal for Montessori program faculty to better frame the purpose, use, and value of case studies for the Montessori student audience, integrating and translating Montessori language and standards with current mainstream educational lingo. With the use of case studies in Montessori leadership coursework, an opportunity exists for faculty to reflect on strategies for using case studies and best practices—for example, emphasis on facilitation and explanation of purposes of use of case studies as an instructional strategy and evaluation of case studies as follow-up. Students may require additional training to familiarize with current educational leadership standards and how those directly connect to and impact their work, regardless of Montessori organizational context. Students need to feel more comfortable in translating why and what they are learning by using case studies, assimilating, accepting, and looking through a leadership lens, not just a Montessori lens.

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Appendix A
Survey Questions for Program Faculty

Your position

- Program Director
- Program Instructor
- Guest Lecturer
- Practicum Supervisor
- Other _____

How many years in your position?

- Less than 2 years
- 2–5 years
- 6–10 years
- More than 10 years

Your primary Montessori organization affiliation

- AMI/USA
- AMI
- AMS
- MF/IMC
- Whole School Leadership
- MACTE Independent
- Other _____

Do you use case studies in your leadership/administrator training? If you respond no to this question, you can stop at this point in the survey

- Yes
- No
- Other

What are the topics/case study situations you have used in your teaching in leadership or administrative training? Check all that apply.

- School leadership
- Communication
- Student situations
- Personnel challenges
- Parents/community
- Board governance
- Curriculum/including Montessori implementation
- Professional ethics
- Connecting theory to practice
- Conflict resolution
- Collaborative leadership
- Other _____

Can you rank order your top three case study topics? 1 is the topic most used in case studies, 2 is the second most used in case studies, and 3 is the third most used in case studies. You can click on the topic and move it into the correct spot.

- Communication
- School leadership
- Student situations
- Personnel challenges
- Parents/community
- Board/governance
- Curriculum (including Montessori implementation)
- Professional ethics
- Connecting theory to practice
- Conflict resolution/decision-making
- Collaborative leadership
- Other

What are the sources for case studies? Please list any publishers/sources known that you use, such as Bolman & Deal, case studies/vignettes with unknown authors.

How are the case studies used in the course? (Check all that apply)

- Facilitated by instructor
- Discussion within class time
- Discussion online
- Discussion in small groups
- Homework assignment
- Individual reflection
- Application to real world leadership situations
- Other _____

What are the purposes of the case studies? (Check all that apply)

- Apply course content to real leadership situations
- Apply case studies to leadership standards
- Provide real life examples for Montessori leaders
- Connect theory to practice
- Develop critical thinking skills
- Other _____

Are students receptive to the use of case studies?

- Yes
- No
- Why or why not_____

What do you think students learn from case studies? (Check all that apply)

- Increased learning of course content
- Apply cases to situations in real life as Montessori leaders
- Make course content more understandable
- Other/Comments

Appendix B
Survey Questions for Graduate Students (Adult Learners)

Your position (Check one)

- School Administrator
- Curriculum Director
- Lead Teacher
- TEP Program Director
- TEP Program Instructor
- TEP Guest Lecturer
- TEP Practicum Supervisor
- Other _____

How many years in your position?

- Less than 2 years
- 2–5 years
- 6–10 years
- More than 10 years

Your primary Montessori organization affiliation

- AMI/USA
- AMI
- AMS
- MF/IMC
- Whole School Leadership
- MACTE Independent
- Other_____

In which doctoral courses have you used case studies?
List courses here:

What were the topics/case study situations that you were assigned in our UWRF course or other leadership courses you have attended? (Check all that apply)

- Challenges with student(s)
- Challenges with staff
- Challenges with parents
- Challenges with board
- Curriculum issues (with Montessori implementation)
- Other_____

What are the sources for case studies? Please list any publishers/sources known that you use, such as Bolman & Deal, case studies/vignettes with unknown authors.

How were the case studies used in the course? (Check all that apply)

- Facilitated by instructor
- Discussion within class time
- Discussion online
- Discussion in small groups
- Homework assignment
- Individual reflection
- Application to real world leadership situations
- Other_____

What were the purposes of the case studies? (Check all that apply)

- Apply course content to real leadership situations
- Apply case studies to leadership standards
- Provide real life examples for Montessori leaders
- Other_____

Were you receptive to the use of case studies?

- Yes
- No
- Why or why not _____

What did you learn from using the case studies?

- Increased learning of course content
- Apply cases to situations in real life as Montessori leaders
- Make course content more understandable
- Other/Comments

How would you rate the use of case studies in MONT814 last year? Rate on a scale of 1–5 with 1 as lowest and 5 as highest.

- 1
- 2
- 3
- 4
- 5
- Comments

Appendix C
Interview Questions for Program Faculty and Graduate Students (Adult Learners)

Interview Questions for Program Faculty

1. What are your experiences using case studies in your teaching?
2. What is your source(s) if you are using case studies?
3. Are case studies useful to your teaching and if so, how? If not, why not and what would have made them useful?
4. Do you clarify the purpose of using case studies in your courses? And what does that look like?
5. What do you think students (adult learners) say about the use of case studies? Can you give an example?
6. Do you think case studies add to the competencies of administrative candidates in your courses? Can you give an example?
7. Do you think students are capable and willing to develop their own case studies in courses?
8. Is there anything else regarding case studies for teaching and learning tools we should be aware of?

Interview Questions for Graduate Students (Adult Learners)

1. What are your experiences using case studies in your coursework, either university-based or other (TEPs, professional development)?
2. What is your source(s) if you are using case studies? (publisher, textbooks, vignettes/stories from the instructor, for example)
3. Are case studies useful to your learning and if so, how? If not, why not and what would have made them useful?
4. Does the instructor clarify the purpose of using case studies in your courses? And what does that look like?
5. What do you think students (adult learners), in general, say about the use of case studies? Can you give an example?
6. Do you think case studies add to the competencies of administrative/leadership candidates in your courses? Can you give an example?
7. Do you think students are capable and willing to develop their own case studies in courses?
8. Is there anything else regarding case studies for teaching and learning tools we should be aware of?

Mortarboard Review: Montessori-Related Dissertations, 2024

Joel Parham, JRP Consulting & Research; University of Kansas
Katie Keller Wood, CMStep, the Cincinnati Montessori Secondary Teacher Education Program
Claudine Campanelli, New York Early Childhood Professional Development Institute

Keywords: *Montessori-related dissertations, doctoral students, higher education*

Each year, doctoral students around the world complete their programs in higher education by writing and defending their dissertations. These students have completed a significant project that results in a thoroughly researched manuscript. Unfortunately, these papers are not widely indexed and may be stored only within institutional repositories or databases devoted solely to dissertations and theses. This process limits exposure of these manuscripts to other scholars, yet many of the works offer valuable contributions to the field. This article is part of an annual series that spotlights the previous year's doctoral dissertations that are relevant to the field of Montessori education and research. This article highlights three of the 21 dissertations considered from 2024 (see the Appendix for a list of all 21 dissertations considered).

As with the previous review in this series, the authors began the selection process with a search across databases and repositories with national and international coverage of dissertations and theses: EBSCO Open Dissertations (https://opendissertations.org), Networked Digital Library of Theses and Dissertations (NDLTD, http://search.ndltd.org), Open Access Theses and Dissertations (OATD, https://oatd.org), and ProQuest Dissertations and Theses Global (PQDT, https://www.proquest.com). The authors compiled a list, which yielded 21 unique dissertations, all written in English, from the 2024 calendar year. Our evaluation excluded any subsequently published dissertations (e.g., article, book), and each dissertation was evaluated on its own merit regardless of the university's status (e.g., nonprofit/for-profit, public/private, religious/secular).

The dissertations were broadly analyzed to determine if any common themes or other commonalities emerged across the collection. The results of this exercise revealed that the works focused on the following: (a) practices of Montessori educators, (b) teacher training, (c) public Montessori schools, and (d) reading development and aptitude. Given this, we decided to review three works we consider to be particularly relevant and timely. Here is a brief introduction to them: Heather Gerker explored the concept and practice of policy advocacy among Montessori teachers and leaders; Courtney Reim examined the extent to which Montessori teachers practice "scientific observation" (SO) and "scientific

observation for assessment" (SOFA); and Sharra Weasler proposed a new model for reading development and reading motivation specific to the Montessori early childhood classroom (primary level). Reviews of these three dissertations are included below.

Gerker, H. (2024). *"Why aren't we speaking up?": A mixed methods study on the political efficacy and advocacy engagement of Montessori teachers* [Doctoral dissertation, University of Cincinnati].[1] https://www.proquest.com/dissertations/docview/3156392450

Education in the United States is a complex system, governed by school, district, state, and federal policies. Teachers have the responsibility of navigating this complex system within their classrooms at the level of implementation with students. Within Montessori education, as argued by Heather Gerker in her 2024 dissertation, teachers face not only policy challenges common to all teachers, but also additional challenges when educational policies do not align with the nature of the Montessori pedagogy. Gerker's study sought to understand how Montessori teachers respond to education policies and how (if at all) they engaged in policy advocacy at local, state, or national levels. Gerker also sought to understand from teachers what they would need in order to speak up for or against policies that shape their Montessori pedagogy.

Gerker's explanatory sequential study was carefully designed, based on the research foundations of Gerker's personal experiences, her philosophical worldview of critical realism, her mixed-methods and participatory action methods, and a conceptual framework that integrated street-level bureaucracy (SLB), sensemaking theory (ST), and relational cultural theory (RCT). These frameworks were woven together, each providing important lenses through which to view the problem and the data. Gerker utilizes Lipsky's (2010) theory of SLB, as a frame for understanding teachers as the ones who are "directly engaged in policy delivery at the front lines" (Brodkin, 2015, p. 30). ST, as Gerker explains, "provides a framework for understanding how people act in response to their meaning making [and] clarifies why people may give different meanings to the same event or the same meaning to different events" (p. 19). Finally, RCT argues that mutually empathetic connections and growth-fostering relationships support human development throughout life, and that these growth-fostering relationships can promote increased self-worth, increased capacity for creativity and productivity, and other positive outcomes. Therefore, relationships between Montessori teachers, between teachers and administrators, and between teachers and policymakers can impact the engagement, self-worth, and productive action of teachers, either positively or negatively.

Gerker's framing of her study in this way is both novel and impressive to this reviewer, setting up an approach that involved multiple steps over time, but which consistently centered the voices of teachers, whom Gerker describes as "the forgotten citizens" of the policymaking process (p. 5). While this review provides an overview of the study, it should be noted that not every aspect of the research questions or findings can be included within the space constraints of this article. Thus, this reviewer has attempted to provide a summary of some of the most interesting, novel, or salient points of the study.

In the first phase of the study, Gerker surveyed 125 Montessori teachers to measure their teacher political efficacy (TPE). From analysis of the survey data, Gerker identified a subset of 33 participants with whom to engage in participatory research, utilizing the Group Level Assessment (GLA) methodology. Engagement focused on their experiences with policy and advocacy, seeking to more deeply understand which conditions and strategies support teachers in navigating policies that impact their Montessori pedagogy and to identify what supports might these teachers need for future policy advocacy. Gerker successfully recruited a wide sampling of Montessori teachers from 24 states and the District of Columbia. This group was diverse in gender and ethnicity, served in public and private schools, represented a range of prior teaching experience, and worked with children and adolescents of various ages. The participants skewed overwhelmingly female and white, and although this is noted as generally representative of the teaching force in America, Gerker also notes that she intends for future studies to broaden the diversity of participants, so that in particular non-white perspectives might be amplified.

In phase one, Gerker utilized the TPE, which offered 20 seven-point Likert scale questions to measure internal, external, and collective political efficacy. Internal political efficacy measures assessed the degree to which participants felt they could personally understand and engage in political activities such as advocacy. External political efficacy measures assessed the degree to which

[1]Reviewed by Joel Parham

participants felt the political system was responsive to their individual needs and concerns. And collective political efficacy measures assessed the degree to which participants felt the system would be responsive to collective efforts of people to demand change. The survey also included an eligibility check, a section for open-ended responses, and demographic questions.

Findings from the analysis of the stage-one survey included that participants in phase one were distributed across low, medium, and high levels of political efficacy across all subscales. Internal political efficacy scores were mostly in the medium range, external political efficacy scored mostly in the low range, and collective political efficacy scores were mostly in the medium-high range. In addition, teachers who had 10 or more years of teaching experience scored significantly higher for external political efficacy than did participants who had less than 10 years of teaching experience, but there was no significant difference between these two groups in terms of internal or collective political efficacy scores. There was also no significant difference between public school teachers and private school teachers on any of the three subscales of political efficacy.

In the second phase of the study, in keeping with Gerker's commitment to center teachers' voices and perspectives, the collaborative GLA research method was utilized to generate, analyze, and prioritize ideas with participants. This happened both synchronously and asynchronously, with 33 participants in the asynchronous phase participating via collaborative online content-sharing platform Padlet, and eight participating in the synchronous phase via online videoconferencing platform Zoom.

Gerker analyzed data from phase one to present five themes to participants of phase two: "1) lack of understanding or trust of Montessori education, 2) external policies do not support the Montessori pedagogy, 3) teacher engagement with policies, 4) mandated assessments and standards, and 5) role of administration" (p. 74). Using Padlet, participants responded to prompts about those themes, generating 288 responses. For the synchronous phase, participants reviewed the Padlet responses, adding comments or expressing agreement with prior comments. Participants were then paired and assigned a set of Padlet prompts to discuss in a breakout Zoom room. As pairs, participants discussed any initial reactions and generated three to five themes or patterns spanning the prompt responses.

After the small group discussions, whereby themes were recorded into a shared Google Doc, participants returned to the main Zoom room to select most prominent themes and determine action steps. From this whole-group discussion, teachers prioritized three themes: "1. Teachers are overstretched. We need time and space dedicated to understanding policies. 2. Teachers do not know enough about policymaking processes or systems to know what to do when policies do not work with our pedagogy. 3. Teachers need access to funding, to the policymakers and to the policymaking process" (p. 79). Unfortunately, the remaining meeting time for brainstorming action steps was extremely limited, so only a few quick suggestions emerged. They included a desire for a simple and plain language course on policy, and a desire for support and time to advocate for themselves.

Gerker completed a secondary analysis of the generated data, findings of which were integrated with participant-generated themes and open-ended responses from the survey in part one, to develop a draft of themes and recommendations which were also shared back to participants for member-checking. In the end, phase two resulted in three major themes, each expressed from the teachers' points of view: "1) We are overstretched and need support. 2) We are not explicitly taught about policymaking processes or systems. 3) We need access to funding and access to policymakers and the policymaking process" (p. 97).

Each theme also had a number of subthemes, and relevant recommendations. Not all participants agreed fully with all recommendations—for example, one recommendation was for policy education to be included in Montessori teacher training, but others disagreed that such placement would be helpful or appropriate. Nevertheless, the full list is illuminating, with lessons for administrators, teacher education programs, districts, and national Montessori organizations. Salient recommendations from teachers on what would best support them in advocating for Montessori education include dedicated time away from the classroom for advocacy, training and professional development specific to policy, and funding for accreditation and teacher training.

Gerker concludes the study with a strong and thoughtful discussion of where she found some of her assumptions to be incorrect, as well as ideas for how to continue supporting teachers as the primary implementers of (yet often overlooked contributors to) educational policy.

Although no study is without its limitations and shortcomings, Gerker's well-designed study is successful in not only uncovering some of the barriers Montessori

teachers may face as policy advocates—including a lack of *understanding* (about educational policy and the policy-making process) and *time* to learn about and then to participate as advocates in shaping policy—but it is also highly successful in centering teachers' voices. Gerker's dissertation is detailed, giving credibility to each step of the process and her conclusions. As the first (and so far only) study examining the political efficacy of Montessori teachers, Gerker makes an important contribution to the field. This reviewer hopes Gerker and others will continue to expand and refine this line of inquiry, so Montessori teachers do not remain "forgotten citizens" of the policymaking process.

Reim, C. (2024). *Montessori teacher dispositions: A mixed methods exploration of scientific observation for assessment* [Doctoral dissertation, University of Hartford].[2] https://www.proquest.com/docview/3106824755

Courtney Reim's study aimed to analyze Association Montessori Internationale (AMI) teachers, specifically those trained teachers for the 3–6 age group, self-reporting their understanding and practice of scientific observation (SO), and SO as a disposition and disposition in action (DIA), to better identify Montessori teachers' application of scientific observation for assessment (SOFA). Her intent is to contribute literature regarding SOFA in Montessori settings due to the paucity of existing literature in this space as well as the area of research in DIA of teachers in Montessori settings. Reim emphasizes this study is significant because much of what is believed about observation in Montessori settings is anecdotal.

Reim anchored her study in the framework of the Montessori trinity (Montessori, 1989)—the child, the environment, and the adult—and relied on the conceptual framework, dispositions, and theory of DIA (Thornton, 2006) to frame her research questions. The data was gathered to inform the primary research question: *RQ1. What do Montessori Teachers with an AMI teacher credential for students ages 3–6 years in the United States report regarding the application of SOFA?* These two sub questions were also posed: *RQ2a. What do Montessori Teachers with an AMI teacher credential for students ages 3–6 years in the United States report regarding SO as a disposition? RQ2b. What do Montessori Teachers with an AMI teacher credential for students ages 3–6 years in the United States report regarding SO as a DIA*? (p. 14). Reim adapted existing SO and SOFA assessment tools. This will benefit future research as it builds upon existing SOFA literature in the field and includes nontraditional pedagogies such as Montessori teaching.

Reim indicated that a dearth of literature focuses on SO, DIA, and SOFA in the context of Montessori pedagogy, teachers, and training, or has been measured or assessed in Montessori settings. She provided comparable literature to extend the understanding of how SO, DIA, and SOFA extend into Montessori settings. Her focus for the literature included these four areas: Data-informed Practices, Scientific Observation, Teacher Disposition, and Novice-Expert Paradigm. I appreciate that Reim included in the literature how education policy has influenced this field of study and each of these themes. Most notably discussed were the accountability practices for the No Child Left Behind Act (Ellis, 2007) and teacher disposition as a standard for accreditation with the Council for the Accreditation of Education Preparation (CAEP).

Montessorians are informed in training about the importance of observation in the work to "follow the child." Reim links this Montessori training message to the contemporary understanding of the practice of SO—that observation and SO can be a teacher's DIA and the act of observation, and can cumulatively be determined as SOFA. I found the literature in the methods section could have been expanded to discuss reliability and validity of the tools chosen, as well as why each tool was chosen and how it was adapted. There is no reference to the actual tool to make a comparison as to how the tool was adapted and how the adaptation maintained reliability and validity as a tool. Some statements were made without reference, such as comments about historic tensions, the "othering" (p. 4) of Montessori pedagogy, and assumptions of others' misunderstanding of Maria Montessori's work and gender issues. Literature to support these claims would be expected. Reim created a section in her literature to explore the Novice-Expert Paradigm. This section is interesting but missed the opportunity to inform readers of the survey results. The section lacked a definition of "expert" or what Reim would deem as expert for this study, and how the findings influenced this decision or vice versa, and how the definition influenced her interpretation of the findings based on the survey questions and years of experience of participants. It was not a point of Reim's study, but a recommendation for further study to examine the correlation of years of

[2] Reviewed by Katie Keller Wood

experience with the results of Montessori teachers' DIA instrument scores would have been valuable.

Reim designed exploratory descriptive research using a convergent mixed method collecting data in parallel, analyzing separately and merging for interpretation. The study incorporated a national survey and an embedded mixed methods case study, using a survey, interviewing rubric and protocols, and Montessori teacher observation checklist, all of which Reim developed for this study. She designed several tools since no applicable tools existed. These included the following: (a) a survey, (b) an observation checklist, (c) an interview protocol, and (d) a rubric. The survey is labeled the Montessori Teacher-Scientific Observation Disposition Scale (MT-SODS); however, neither the methods section nor the appendix shed light on what was adapted or adopted from the original survey, the Teacher Educators' Researcherly Disposition Scale (Tack & Vanderlinde, 2016). The observation checklist or DIA rubric is adapted from a similar tool developed by Thornton and Strahan (2004). No reference is made to what was adapted or adopted to create the tool of this study. The specifics of the interview protocol are not included in the methods or appendix. It is unclear if the protocol was a script, guidelines, or framework. The study states that the interview was coded; however, there is no appendix to outline the coding of the interview responses to the dispositions or DIA assessment tool. Due to the small n value for both participants for the survey and one case study, this dissertation is a starting point for ongoing research and discussion but should not be generalized for the greater Montessori community.

Reim concludes from her findings that Montessori teachers with an AMI credential for students ages 3–6 in the United States report application of SOFA existed with some degree of predefined aims and objectives, and reported the application of SOFA was related to system challenges for developing and sustaining SO procedures. Based on the results, her recommendations include practice for Montessori teachers, Montessori teacher preparation programs, and how to expand this area of research.

Despite my personal assessment of the additional needs to bolster the literature review and understanding of the process of the self-developed assessment tools for the study, I believe Reim's contribution to the SOFA literature creates new opportunities for further analysis and research in this area. While her focus is on the Montessori teacher trained for the 3–6 group, this study is applicable to all Montessori age groupings. Reim's statement that understanding how observation informs the Montessori practice of "following the child" in the environment with fidelity—and how this can inform the process of SOFA—was crucial to bring each piece of the study together. Specifically, she states, "The practice of SOFA enables Montessori Teachers to guide the child to activities that support the work of self-construction." (p. 5).

Weasler, S. (2024). ***A grounded theory exploration of learning to read in the Montessori early childhood classroom: Using teacher knowledge and experience to build a model of reading development and to examine how Montessori pedagogy supports reading motivation*** **[Doctoral dissertation, University of Northern Colorado].**[3] **https://digscholarship.unco.edu/dissertations/1111**

In this study, Sharra Weasler sought to construct a new model of reading development concerning practices in Montessori early childhood classrooms. She conducted interviews with seven educators and made observations in one classroom. This data was gathered to answer three research questions: (1) What is the process by which children learn to read in a Montessori early childhood classroom? (2) How does the Montessori language curriculum support the process of learning to read? and (3) How does the Montessori Method support the process of learning to read? (pp. 12–13). Ultimately, the model she created is similar in many ways to existing models regarding the process of learning to read; however, her model is specific to Montessori environments. This is novel because it opens the door to future research in this area.

Regarding the first research question, she asserted that educators she interviewed identified "four lines of skill development and two lines of skill application" (p. 110). Accordingly, skill development included the following: (1) domain-neutral skills and attitudes, (2) oral language, (3) metalinguistic awareness, and (4) symbol-sound association. Weasler defined these terms as follows: Domain-neutral skills and attitudes are generally understood to be "concentration and attention span, motivation, and memory"; oral language encompasses "vocabulary and background knowledge and conversation skills"; metalinguistic awareness includes "phonemic awareness and semantic awareness";

[3] Reviewed by Claudine Campanelli

and symbol-sound association involves "memorizing the phonemes that match the visible letters or groups of letters" (pp. 110–111). As for skill application, Weasler asserted this included (1) encoding (building words) and (2) decoding (translating the written or spoken word into meaning). Referencing details from interviews with Montessori classroom educators and in-classroom observations, Weasler clearly communicates how her data supports the existence and necessity of these skills for reading.

Weasler's second research question establishes that a formal "Montessori curriculum" does not exist—neither the Association Montessori Internationale (AMI) nor the American Montessori Society (AMS) have defined a curriculum package. Thus, Weasler makes the distinction that curriculum, as related to this question, refers to "the classroom materials and structured activities" (pp. 124–125). This definition may seem overly broad, but it encapsulates the entire Montessori classroom, which serves as an environment that has specific materials and activities designed to aid in a child's holistic development. This section of her dissertation is rich with descriptions of different aspects and activities found in a Montessori classroom. These descriptions include details about various elements of the curriculum and how they contribute to the reading development process. Using data and findings pertaining to research questions one and two, Weasler created her Four Strand Reading Braid (p. 164)—a new model of the process for learning to read in the Montessori early childhood classroom (more details below).

In her third and final research question, Weasler relies on data from classroom observations and interviews to examine how the Montessori Method supports the process of learning to read. Her classroom observation, as previously indicated, consisted of observations in one classroom. Though this is a very small sample size, she used semi-structured interviews to validate or challenge her observations. As Weasler notes, "There were strong similarities across the interviews, corroborated by my classroom observations, which enabled me to construct the data-based model of the Montessori pedagogy" (p. 170). I do not elaborate here, but her model of the Montessori pedagogy and the accompanied description may be of particular value to other researchers (pp. 171–172).

With the scope and focus of Weasler's study outlined above, I turn to a brief analysis of her literature review. She comprehensively covers the body of science of reading (SOR) research, noting that most of this research has employed quantitative methods, establishing the necessity of qualitative research in this area. Her review of the SOR research acknowledges conflicting findings among studies (pp. 55–57) and that most of this research "is conducted by neuroscientists and behavioral scientists who have no classroom experience" (p. 58). She also notes that several literacy instruction studies have demonstrated how educators emphasized social development over literacy development in the early years (p. 62). As Weasler puts it, these studies "indicate that the priority that [educators] place on literacy instruction may be increasing, [yet, educators] still lack knowledge and skills when it comes to literacy instruction, and quality curriculum and professional development can improve [educators'] classroom practice" (pp. 62–63).

In her evaluation of Montessori-related reading studies, Weasler acknowledges that scholarly research in this area is small but growing. Though Weasler's findings are generally accurate, it's worth noting that some Montessori-related research is overlooked in her review and she also potentially overemphasizes research by Angeline Lillard. Although Lillard is a top researcher in the Montessori field, not included are other works that would have been a welcome inclusion and could have established a broader foundation, context, and necessity for the study (e.g., Denervaud et al, 2020; Patel, 2012; Richardson, 1997; Thompson, 2024; Zoll et al, 2023). A review of works by Montessori practitioners describing their classroom experiences pertaining to reading or literacy development would have been a welcome addition as well. Though not a substantial error, Weasler inaccurately identifies the setting of the study conducted by Denervaud et al. (2019) as Helsinki, Finland—it was actually Geneva, Switzerland, with Swiss schoolchildren. Weasler declares that "there is no research focused on the process of learning to read in the Montessori early childhood classroom" (p. 65), but this statement seems tenuous given the brief list of Montessori-related reading studies listed in parentheses above.

As noted here, her literature review has some shortcomings; however, she sufficiently establishes her study's context and necessity. While these facts should not be interpreted as a disqualification of Weasler's study, they are noteworthy. A broader review of Montessori-related scholarship concerning reading and literacy in the Montessori environment may have established a stronger foundation for the study.

Moving on to the substance of the study, some studies related to literacy and reading development in the Montessori classroom have been conducted, but the

quantity is limited. Given this, Weasler "believed a new theory of learning to read, which is based on a systematic study of the [reading development] process as a whole, was needed," and she boldly asserts, "This dissertation is the first systematic study of how reading develops in the Montessori classroom" (p. 81). While this claim—"first systematic study"—is a questionable distinction, a study of this kind is novel, necessary, and timely, particularly given the reading scores in the most recent The Nation's Report Card (National Assessment of Educational Progress, 2025). Weasler sought to construct her model through a qualitative case study relying on interviews, observations, and photos captured from AMI-trained primary-level educators (p. 13).

Weasler "integrated the findings" from the first two research questions to construct her model—the Four Strand Reading Braid (p. 164)—which, while not explicitly acknowledged, appears to be a derivation of Scarborough's Reading Rope (International Dyslexia Association, 2018; Scarborough, 2001) blended with elements from SOR models. Weasler's introduction of a new model of learning to read in the Montessori early childhood classroom is novel; however, a discussion about the relationship between her model and Scarborough's is absent. This would have been a welcome discussion, but its absence opens up an opportunity for further evaluation. Despite this, Weasler compares her Four Strand Reading Braid model with SOR-based models (pp. 217–219). In doing so, she highlights how the Four Strand Reading Braid is more comprehensive, and relies on qualitative measures as opposed to quantitative. Weasler reviewed SOR models such as the Simple View of Reading (SVR) and the Active View of Reading (AVR) models, as well as some other derivations, but emphasizes that these are based on quantitative data. She claims her Four Strand Reading Braid "is not based on the SVR," yet her model appears to be partially based on a derivative of the SVR—Scarborough's Reading Rope.

Despite these critiques, Weasler's work is a welcome contribution to scholarship concerning reading and literacy development within the Montessori early childhood classroom (primary level), particularly since it relies on qualitative data. Additionally, her model—the Four Strand Reading Braid—is valuable as it constructs a visual representation of the process of reading development specific to the Montessori classroom. This model and its relation to existing models of reading development in early childhood classrooms enables future research to evaluate conventional and Montessori classrooms from new and different perspectives.

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Zoll, S., Feinberg, N., & Saylor, L. (2023). *Powerful literacy in the Montessori classroom: Aligning reading research and practice*. Teachers College Press.

Appendix: List of 2024 Dissertations Considered

Afroz, F. (2024). *Preschool teachers' self-efficacy in teaching mathematics: A multiple holistic case study approach* [Doctoral dissertation, Clemson University]. https://open.clemson.edu/all_dissertations/3837

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Bellairs Salemi, L. (2024). *Staff perceptions of data collection and analysis during multitiered systems of support in a public Montessori charter school* [Doctoral dissertation, Walden University]. https://scholarworks.waldenu.edu/dissertations/15920

Blackwell, A. L. (2024). *Adapting Montessori education: A study of implementation in Poland* [Doctoral dissertation, University of Hawai'i at Manoa]. https://www.proquest.com/docview/3168122553

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