Volume 10, Issue 2
Fall 2024

Journal of Montessori Research

TEN 10 YEARS

A Publication of the American Montessori Society
Supported by University of Kansas Libraries

Contents

November 2024

TEN 10 YEARS

From the Editor

We are pleased to be wrapping up the *Journal of Montessori Research*'s 10th year with an informative fall issue. In the first article, Elyse Postlewaite, Dalia Avello, Catherine Massie, and Ayize Sabater share their work examining the perceptions and impact of the Ages and Stages Questionnaires (ASQ) developmental screening tools when adapted for Montessori guides and administrators.

In the second article, Genevieve D'Cruz proposes the Critical Montessori Model, which centers high-fidelity Montessori practice encompassed by critical race theory, as a way for researchers and practitioners to interpret the Montessori Method.

Jennifer Moss and Theodore Wheeler in the third article examine differences in beliefs of Montessori and traditional teachers regarding effectiveness, normality, and ease of autonomy-supportive and controlling teaching, as well as differences in motivating styles.

Two review articles conclude this issue. Mira Debs reviews an important translation of Christine Quarfood's 2017 Swedish book *Montessoris Pedagogiska Imperium: Kulturkritik och Politik i Mellankrigstidens Montessorirörelse* now available to English-speaking readers as *The Montessori Movement in Interwar Europe: New Perspectives*. Quarfood explores how diverse intellectual networks between World War I and World War II were actively debating Montessori education and defying its representation as a single ideological monolith.

Finally, Heather Gerker continues the journal's series "Rediscovering the Child: Review of Montessori Educator Research Projects 2023–2024" with a discussion of four graduate research papers.

In closing, I also encourage you to read, if you have not already, the September special issue in which we reprinted five articles from the European *Journal of Montessori Research and Education* (*MoRE*) published by the Stockholm University Press, as *MoRE* has joined the *Journal of Montessori Research*.

Sincerely,

Angela K. Murray, PhD
Editor, *Journal of Montessori Research*
Director, Center for Learner Agency Research and Action (CLARA)
Program Chair, AERA Montessori Education SIG

Ongoing American Montessori Society (AMS) financial support for the Journal of Montessori Research *makes open access possible without requiring authors to pay article processing charges.*

Implementing the Ages and Stages Questionnaires in a Montessori Setting

Elyse L. Postlewaite, Montclair State University
Ayize Sabater, Association Montessori International of the United States
Dalia Avello-Vega, Portland State University
Catherine Massie, Montessori Medical Partnership for Inclusion

Keywords: *Montessori, disabilities, Ages and Stages Questionnaires*

Abstract: Montessori educators face increasing demands to support growing numbers of students who have developmental delays or disabilities, and early detection and support are essential. Yet, detecting developmental delays is a complex task, and early childhood educators do not typically receive specialized training. The Ages and Stages Questionnaires (ASQ) is a set of valid and reliable developmental screening tools widely used in education and health settings, but ASQ use has not been assessed in Montessori settings. In a pre/post, multimethod design, this study examined the perceptions and impact of an ASQ training—adapted for Montessori settings—for guides and administrators. The results suggest the ASQ training and implementation of its tools were perceived as beneficial and valuable. The training positively influenced participants' attitudes and beliefs, skills and knowledge, confidence and self-efficacy, and access to resources. Alumni of the training had similar attitudes and beliefs, as well as confidence and self-efficacy, compared to recent trainees, although alumni's skills and knowledge, as well as access to resources, were more advanced than the recent trainees. Qualitative findings also point to the benefits of the training while highlighting the realities, needs, and challenges Montessori educators face. This study provides evidence that Montessori educators benefit from ASQ developmental screening training. Through ASQ training and implementation, Montessori educators can gain a better understanding of students' developmental milestones, more effectively observe their students' behaviors, and more confidently advocate for students' support needs.

Early detection and support in schools are essential for young children who have developmental delays or disabilities (Hirai et al., 2018; National Center for Learning Disabilities, 2020). However, a significant number of developmental disabilities and delays go undetected, potentially hindering children from reaching their full potential (Weitzman et al., 2015). Like other teachers, Montessori educators face increasing demands in their schools to support growing numbers of students who have developmental delays or disabilities. The current national estimate of school-age children who have at least one developmental disability is about 17%, or one in every six children—a number that has been on the rise since it has been tracked (Centers for Disease Control and Prevention, 2024). The COVID-19 pandemic intensified the demand and urgency of supporting these students since their behavior could not be easily observed during distance learning (Macy, 2022).

Extensive research highlights the benefits of universal early screening and intervention for developmental delays (Hirai et al., 2018; National Center for Learning Disabilities, 2020). However, despite federal requirements to identify such students (U.S. Department of Education, 2017), educators receive little funding or training to effectively detect and support developmental disabilities, and build positive relationships with caregivers while doing so. Montessori educators, like others, face challenges in identifying and supporting children with developmental delays or disabilities (Danner & Fowler, 2015; Epstein, 1998; Long et al., 2022), hindering the creation of truly inclusive educational spaces and positive teacher-caregiver relationships.

The education and welfare of children depend on effective educators and systems that nurture their growth. Montessori schools, known for their unique pedagogical philosophy, aim to cater to the distinctive needs of every child, emphasizing individualized instruction and holistic development. As a result, many families seek Montessori schools to support their children's optimal development. Even though Montessori schools are a natural choice for many families, Montessori guides and administrators sometimes feel unprepared to meet the diverse needs of students and their families (Epstein, 1998; Long et al., 2022). In this context, the Ages and Stages Questionnaires (ASQ), a universal developmental screening tool and training modality, emerged as a promising strategy for Montessori programs, enabling Montessori educators to identify students' developmental delays in collaboration with parents and caregivers. The ASQ tools can also facilitate crucial conversations with caregivers, potentially ensuring children get the appropriate interventions, resources, and support they need.

However, the ASQ training and implementation guidelines had not been previously adapted for use specifically in Montessori schools—an important step, given Montessori programs' unique pedagogy, settings, and practices. For instance, in addition to learning about Montessori's unique theory of development (i.e., the planes of development), Montessori guides also receive specialized training on how to observe and engage with children in the classrooms and how to interact with caregivers. Therefore, in 2019, a Montessori-specific ASQ training was designed by ASQ trainer and AMI Montessori guide Dalia Avello-Vega to equip Montessori educators and administrators with the knowledge and skills necessary for effective implementation of this tool specifically in Montessori settings.

Although the ASQ is well-regarded in traditional settings, given the unique education approach and training of Montessori practitioners, it is important to examine empirically how Montessori educators perceive the training and implementation of the ASQ. To address this, a research study commissioned by the Association Montessori International of the United States (AMI/USA) was conducted during the 2022–2023 academic school year to explore the outcomes, perspectives, and experiences of Montessori guides and administrators who were trained to use the ASQ in their schools.

About Montessori

Montessori education, as originally conceived by Maria Montessori, was designed to serve students with special needs. Montessori created the Montessori Method in alignment with her developmental theory, the planes of development, which she identified through her direct observation of children (Montessori, 1971; 1989). More detailed elaboration is provided by Murray and colleagues (2020, p. 205), concerning the life of Montessori and the Montessori approach:

> *Maria Montessori was one of Italy's first female physicians, and she developed a groundbreaking educational method based on astute observation of children's behavior while working in one of the poorest neighborhoods in Rome (Gutek, 2004; Kramer, 1988). . . . She was a woman before her time in suggesting that children learn through hands-on activity, that critical brain development*

> *occurs during the preschool years, and that children with disabilities could and should be educated (Montessori, 1912b). . . . Montessori education is an individualized approach with a long-term perspective. Children remain with the same teacher [ideally] in multiage classrooms for three years, allowing for continuity in the learning experience (Montessori, 1912b). In this environment, children work at their own pace with opportunities for cooperative learning while working in small, mixed-age groupings according to ability and interest (Montessori, 1912b; Montessori, 1972). Montessori programs typically limit the emphasis on whole group instruction, grades, and tests and instead focus on student-chosen work with specially designed materials during long blocks of uninterrupted time (Montessori, 1912b; Montessori, 1965a; Montessori, 1965b).*

Today more than 3,495 Montessori schools in the United States (National Center for Montessori in the Public Sector, 2023) follow the distinct Montessori philosophy along with its accompanying practices and emphasis on nurturing environments. Such practices embody a promise for the welfare of all children, including those with disabilities (Long et al., 2022).

Teacher Training and the Preparation of the Adult

Teacher preparation is crucial for ensuring that educators are equipped with the necessary knowledge, skills, and competencies to effectively manage classrooms and facilitate student learning. Typical teacher preparation tends to be competency-based; however, teachers also need knowledge of behavioral strategies, identification of special needs, curriculum adaptation, legal regulations, and collaboration skills to effectively support inclusive classrooms (Kamens et al., 2000). Given the evidence suggesting students with disabilities fare better in inclusive classrooms (Downing & Peckham-Hardin, 2007; Kefallinou et al., 2020; Van Mieghem et al., 2020), general education teachers need special training pertaining to developmental disabilities and inclusive education practices. Mounting evidence supports the premise that general education teachers who receive training in special education are better at implementing inclusive practices (Zagona et al., 2017). Importantly, whereas teacher training is crucial to preparing educators for the classroom, also critical is ongoing professional development beyond initial training to refresh knowledge and skills as well as learn the best practices from cutting-edge research (Creemers et al., 2012; Van Mieghem et al., 2020). Moreover, a team including specialists and highly trained personnel with expert knowledge in special education can ensure a truly inclusive education experience (Division for Early Childhood of the Council for Exceptional Children, 2014; Mastropieri et al., 2011).

For classroom preparation, guides receive Montessori-specific teacher training aligned with the Montessori pedagogy. For example, in Association Montessori Internationale (AMI) training,

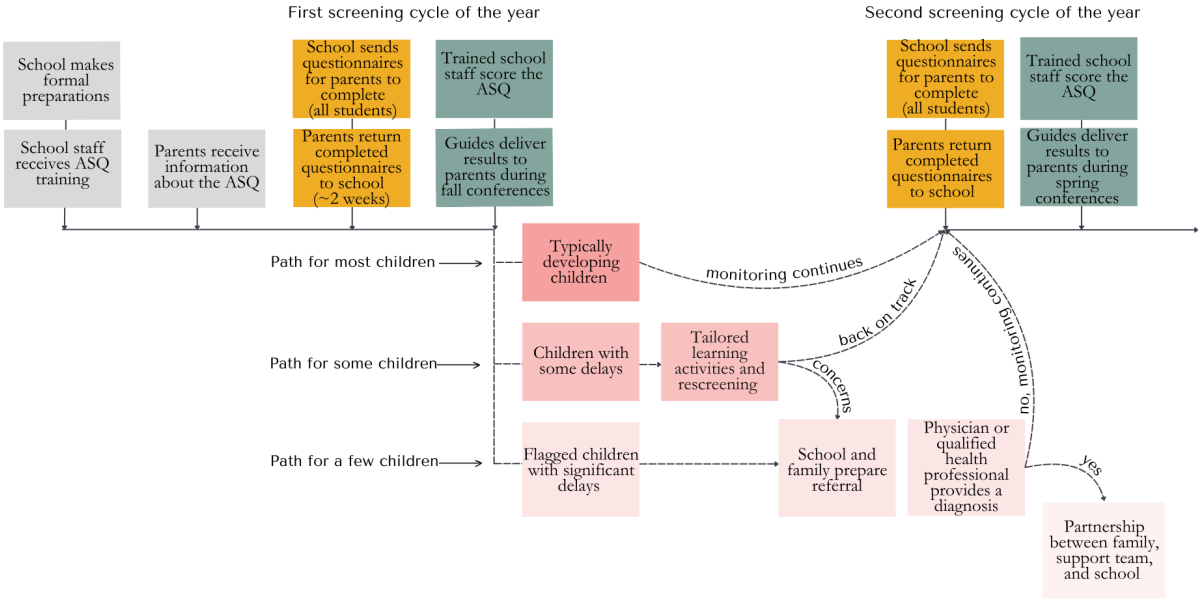
> *… trainees study the Montessori philosophy about child development and how to practically apply it in their work with children. [Trainees] engage in a deep study of Montessori theory and practice through lectures and demonstrations on [the] use of the Montessori materials that support the child's development at each plane, as well as practical application through observations and practice teaching. (R. Sabater, personal communication, September 18, 2024)*

While Montessori teachers receive training on child development, it is the authors' understanding that some Montessori training does not include in-depth focus on developmental delays or disabilities. There is little publicly available information on the content of Montessori teacher training; therefore, the conclusions we can draw are limited. However, personal communications and web data confirm the focus on early childhood development, educational pedagogy, observations, implementation, and classroom management in Montessori teacher-preparation programs (American Montessori Society, n.d.; Association Montessori Internationale, n.d; S. Werner Andrews, personal communication, August 22, 2024). Few of the courses involve the same depth and preciseness of understanding developmental disabilities as is reflected in the ASQ training. Evidence from research studies suggests that, like traditional educators, many trained Montessori educators feel underprepared to identify and support children who have developmental delays or disabilities (Danner & Fowler, 2015; Epstein, 1998; Long et al., 2022). Montessori educators may benefit from additional training to support students who have developmental challenges.

Developmental Screening Tools and the ASQ

Early detection with developmental screening is critical for identifying students who have special needs so a diagnosis and support plan can be established.

Figure 1.
Typical ASQ Developmental Monitoring Implementation Flow for Montessori Programs



Standardized screening tools allow for systematic, continuous monitoring and evaluation, which are essential for effective intervention and creating successful environments for students and families (Khan, 2019). To meet this need, a variety of developmental screening tools have been created. An exhaustive review of developmental screeners is beyond the scope of this paper; however, we provide a brief overview of several key considerations for selecting an appropriate developmental screener. For example, developmental screeners can vary regarding content (e.g., motor, social, cognitive, behavioral), completion time, financial cost, reliability and validity, standardization, and who completes the screener (Rydz et al., 2005). The appropriateness and usefulness of each type of screener depend upon the needs of the community. The Ages and Stages Questionnaires (ASQ) was selected to be adapted and utilized in the Montessori setting—and as the focus of this study—because the questionnaires are relatively easy to train and implement in collaboration with families. Additionally, the ASQ is widely used, research-based, standardized, culturally sensitive, and translated into many languages (Bricker et al., 2010; Macy, 2012; McCrae & Brown, 2018).

The ASQ training and tools facilitate identification of developmental delays among children ages 0 to 6. The questionnaires are divided into two tools:

1. Ages and Stages Questionnaires, Third Edition (ASQ-3) measures development across five areas—fine motor, gross motor, expressive and receptive communication, problem-solving, and personal-social.
2. Ages and Stages Questionnaires: Social-Emotional, Second Edition (ASQ:SE-2) focuses exclusively on socioemotional indicators. The questionnaires can be used across different settings including early childhood education (Veldhuizen et al., 2015).

The ASQ is a parent-completed set of standardized universal screening tools developed by a research team at the University of Oregon to produce an effective and culturally sensitive set of questionnaires that are also valid and reliable (Bricker et al., 1988). The ASQ enables trained guides to work with caregivers to detect delays, engage in vital and potentially challenging conversations with caregivers, and ensure that children receive the appropriate interventions, resources, and support they require. Figure 1 depicts the process of implementing the ASQ, from staff training to conversations with caregivers to formal diagnosis to continual monitoring.

The systematic use of the ASQ in Montessori settings began as part of The ASQ Trailblazers Project launched by the Oregon Montessori Association (OMA) in 2019 to support Montessori educators wanting to (a) more accurately identify children at risk for developmental delays, (b) better support developmentally delayed students needing access to evaluation, and (c) be better prepared to have compassionate and meaningful

conversations with parents and caregivers about these challenges. In Oregon, Montessori programs participating in the Quality Rating and Improvement System (QRIS), also known as Spark, were encouraged to use the ASQ. However, the training and implementation guidelines they found available were mostly applicable to Early Head Start and Head Start models, and did not match the way Montessori programs functioned. Learning how to effectively use these tools and implement a developmental monitoring program—one that is compatible with both the Montessori pedagogy and the way Montessori programs work—has been a core goal of the project. Since its inception, more than 150 Montessori guides and administrators across Oregon and southern Washington have received training and support from ASQ trainer Avello-Vega, setting the foundation for this study.

The Need for This Study

Over the last several years, one of the largest Montessori associations in the United States, AMI/USA, repeatedly received inquiries from guides and parents regarding inclusive education. An influential Montessori leader directly asked in an email message:

> *I have been asked a few times about the [Montessori] Inclusion Course being offered again.… [It] was so well received. Do you know if there are any plans to offer it again? There is such a great need for this [type of] help for teachers.*
>
> *Thank you, Allyn Travis*
>
> (personal communication, March 24, 2023)

Additionally, during AMI/USA's annual conference—the 2024 Montessori Experience: Refresher Courses & More in Addison, Texas—nearly 25% of the approximately 1,000 registrants filled out a survey that included a question asking respondents to identify the top issues facing the Montessori community. Approximately 13% of respondents identified some version of "neurodiversity," "special education," or "inclusive education," which when combined into one category (inclusive education) was the most pressing topic.[1] This moved the AMI/USA leadership team to seek a host of interventions in an attempt to address this pressing need. One strategy was to establish a human rights and social justice (HRSJ) committee, which established a group of advisors who quickly identified "inclusive education" as one of its top priorities. During a meeting of the HRSJ advisors, Montessori special educator Catherine Massie suggested that Avello-Vega be invited to talk about her groundbreaking work using a Montessori-adjusted early childhood developmental screener known as the Ages and Stages Questionnaires (ASQ). After Avello-Vega's presentation at an HRSJ committee meeting, committee members decided a formal study was needed on how the Montessori-adjusted ASQ training was received within the Montessori community.

Current Study

Although research confirms the positive benefits of developmental screeners (Bellman et al., 2013; Hirai et al., 2018), it is unclear how Montessori guides and administrators perceive the potential benefits and challenges associated with the ASQ implementation—a gap the present study aimed to fill. Specifically, this multimethod study aimed to assess the attitudes, beliefs, knowledge, skills, confidence, self-efficacy, and access to tools of Montessori guides and administrators before and after completing the *Use and Implementation of the Ages and Stages Questionnaires in a Montessori Setting* training. In addition, the study sought to explore the realities and needs of Montessori educators in supporting students who have disabilities, as well as ascertain the perceived benefits and challenges guides experienced in implementing the ASQ after being trained.

To inform the study, the following research questions were addressed: (1) *Do Montessori guides' and administrators' attitudes, beliefs, knowledge, skills, confidence, self-efficacy, and access to tools for supporting students with developmental disabilities or delays change before and after completing the ASQ in a Montessori Setting training?* (2) *Do the effects of participating in the ASQ training persist over time for trained alumni?* (3) *What are the realities and needs of Montessori guides and administrators for serving students with developmental disabilities or delays?* (4) *What are the perceived benefits and challenges of the implementation and use of the ASQ by Montessori community members?*

Methods

To address the research questions, the study featured a multimethod, pre/post design. The pre/post design was used to assess Montessori guide and administrator perceptions and experiences toward universal screenings, as well as gauge their experiences supporting students

[1] "Family partnerships" was the second most pressing topic, and "racial equity" was the third.

who have developmental disabilities or delays, from before and after completing a Montessori ASQ training. The strengths of using both quantitative and qualitative methodologies are useful for drawing rich, contextual findings and conclusions (Creswell & Plano Clark, 2018). Quantitative methods included Likert-style, self-report response items on a pre-survey, post-survey, and post-only survey. The survey provided numerical scores of guides' and administrators' attitudes, beliefs, confidence, and perceived skills around identifying and supporting young students who have developmental delays or disabilities. The quantitative numerical scores were used to address the first and second research questions. It was hypothesized that participants in the ASQ training would have significantly higher scores on the outcomes of interest after completing the training compared to before. It was further hypothesized that the alumni of the ASQ training would have similar scores on the outcomes of interest compared to the recent completers of the ASQ training. In other words, it was hypothesized that the effects of participation in the program would be sustained over time for alumni.

Qualitative methods included open-ended survey questions and semi-structured focus groups with Montessori guides and administrators, addressing the third and fourth research questions, which explore perceptions around realities and needs for inclusive educational experiences for students as well as perceived benefits and challenges of using the ASQ. Since the third and fourth research questions were explored qualitatively, no hypotheses were generated.

Sample and Procedures

Pre/Post Survey

An online training, *Use and Implementation of the Ages and Stages Questionnaires in a Montessori Setting*, was conducted via Zoom across three Saturday mornings in January 2023. Approximately four to six weeks after the completion of the training, participants who completed the ASQ pre-survey and the training were emailed invites to complete the ASQ post-survey. For completing the training and ASQ pre- and post-surveys, each participant received a certificate of completion for professional development hours and a chance to win one of four $50 AMI/USA bookstore gift cards.

Montessori guides and administrators were invited to participate via email through the AMI/USA member LISTSERV, which was distributed to approximately 10,000 individuals. The aim was to recruit 100 guides and administrators to participate in the training. A total of 127 Montessori guides and administrators completed a consent form and registered for the training to account for attrition. A total of 67 participants completed the ASQ pre-survey and training (Table 1). A majority of the ASQ pre-survey participants were female (94%) and had an average age of 44.7 (*SD* = 10.4). A total of 45 participants completed the ASQ post-survey (Table 1). A majority of the ASQ post-survey participants were female (91%) and had an average age of 47.1 (*SD* = 7.78).

Most participants were Montessori guides (52% pre-survey and 58% post-survey) or administrators (34% pre-survey and 42% post-survey). The average number of years participants had been educators was 18.6 (*SD* = 10.6). It was most common for participants to have never previously completed any specialized coursework besides a child development course (37%), whereas 22% had completed a specialized course in developmental delays or disabilities. Most participants worked at private Montessori schools (48%), and 4% of the schools were AMI/USA-recognized .

Post-only Survey

Montessori guides and administrators who were alumni of the *ASQ in a Montessori Setting* training, having completed the training prior to January 2023, were invited to participate in the post-only survey via email. Approximately 80 guides and administrators received the invitation to participate in the post-only survey. Each participant received a $5 gift card for completing the survey.

A total of 27 alumni participants completed the post-only survey (Table 1). A majority of the alumni participants were female (48%) and had an average age of 47.7 (*SD* = 10.2). A majority of the alumni participants were White (64%). Most alumni participants were administrators (59%) followed by guides (33%).

Focus Groups

Guides and administrators who participated in the training and surveys were invited to participate in the focus groups. Participation in the focus groups was low, therefore, an additional town-hall-style focus group was scheduled for guides and administrators invited through a member listserv. Participants received a $5 gift card for participating in a focus group.

A total of 20 guides and administrators participated in the focus groups. All participants were female (100%) and had an average age of 50.5 (*SD* = 9.95). A majority of focus group participants were White (55%). The average number of years of being an educator was 18.7 (*SD* = 7.51).

Table 1.
Survey Sample Demographics

	Pre-Survey		Post-Survey		Alumni Survey	
	N	%	*N*	%	*N*	%
Sex						
Male	3	4%	1	2%	0	0%
Female	63	94%	39	91%	13	48%
Race and Ethnicity						
White	41	61%	23	53%	9	33%
American Indian or Alaska Native	1	1%	1	2%	0	0%
Asian	5	7%	5	12%	9	33%
Black or African American	1	1%	0	0%	9	33%
Filipino	2	3%	1	2%	9	33%
Latinx or Hispanic	5	7%	3	7%	3	11%
Middle Eastern or North African	1	1%	0	0%	0	0%
More than one race or ethnicity	6	9%	3	7%	0	0%
Other	0	0%	2	5%	2	7%
Prefer not to disclose	5	7%	3	7%	1	4%
Number of Years as an Educator						
< 6 years	15	22%	5	12%	1	4%
6 - 15 years	19	28%	9	21%	3	11%
16 - 25 years	24	36%	19	44%	7	26%
> 25 years	8	12%	8	19%	3	11%
Educator Role						
Guide	35	52%	25	58%	9	33%
Administrator	23	34%	18	42%	16	59%
Other	1	1%	0	0%	2	7%
Prior Coursework						
No specialized coursework	10	15%	7	16%	3	11%
Only a child development course	13	19%	6	14%	4	15%
At least one specialized course	34	51%	27	63%	6	22%
Montessori Member						
Yes	30	45%	21	49%	6	22%
No	24	36%	19	44%	5	19%
Unsure	5	7%	3	7%	3	11%
School Type						
Private	51	76%	37	86%	13	48%
Public	2	3%	1	2%	1	4%
Other	6	9%	5	12%	0	0%
School Is AMI/USA Recognized						
Yes	28	42%	17	40%	1	4%
No	25	37%	21	49%	13	48%
Unsure	6	9%	5	12%	0	0%

Most participants had previously completed a specialized course in developmental delays or disabilities (65%), whereas 35% had never completed any specialized coursework besides a child development course.

Measures

Survey

The researcher developed the self-report survey—for the pre-survey, post-survey, and post-only survey—to measure participants' attitudes and beliefs, knowledge and skills, confidence and self-efficacy, and access to requisite tools and resources to use universal screeners to support students with developmental disabilities or delays. An example item that measured attitudes and beliefs was, "Using [a developmental screener] is essential for the detection and development of developmental delays in young children." An example item that measured knowledge and skills was, "I have the knowledge I need to be able to detect developmental delays within all my students." An example item that measured confidence and self-efficacy was, "I believe I can always identify difficult-to-detect developmental delays in all my students." An example item that measured access to tools and resources was, "I have the tools I need to provide appropriate interventions for my students in need." All items were presented randomly in a Likert-style format for participants to rate their level of agreement from 1 (strongly disagree) to 7 (strongly agree).

Demographic and background information, such as the number of years being a Montessori educator, were also collected. In addition, several open-ended items were included to assess the benefits and challenges of implementing the ASQ.

Focus Group Protocol

The researcher developed a semi-structured focus group protocol. The focus group questions invited participants to reflect on their attitudes toward universal screeners, how their experiences supporting students who have developmental disabilities or delays had changed since completing the ASQ training, and any benefits or challenges of implementing the ASQ in their respective school settings.

Analysis

To address the first and second research questions, which are related to participants' attitudes, beliefs, knowledge, skills, confidence, self-efficacy, and access to tools for supporting students with developmental disabilities or delays, survey items were grouped into a series of corresponding subscales: attitudes and beliefs, perceived knowledge and skills, confidence and self-efficacy, access to resources and tools around universal screeners, and identifying and supporting students with developmental delays or disabilities. Cronbach's Alpha tests of reliability were calculated for the pre-survey, post-survey, and post-only survey for each subscale and demonstrated high reliability (see Appendix). To answer the first research question, a series of repeated measures t-tests were conducted to analyze the differences between ASQ training participants' pre- and post-training scores for each subscale. To answer the second research question, a series of independent sample t-tests were conducted to analyze differences between ASQ post-survey participants' (recent completers) scores and alumni participants' scores on each subscale.

To address the third and fourth research questions, a conventional thematic analysis approach (Hsieh & Shannon, 2005) was conducted with the open-ended survey items from the post-only survey, along with guide and administrator focus group responses. The final set of codes was developed through an iterative process of creating and combining codes through multiple rounds of reviewing and coding the qualitative data.

Results

Results and findings are categorized by the research questions. Descriptive statistics from the self-report surveys (items and subscales) are provided in Table 2, to address the first research question: *Do Montessori guides' and administrators' attitudes, beliefs, knowledge, skills, confidence, self-efficacy, and access to tools for supporting students with developmental disabilities or delays change before and after completing the ASQ in a Montessori Setting training*? Results from the pre/post survey analyses (Table 2 and Table 3) indicate that guides and administrators were significantly more likely to recognize the benefits of using a universal screener after completing the ASQ training ($M = 5.89$, $SD = 1.05$) compared to before the training ($M = 5.20$, $SD = .93$, $p < 0.01$). Similarly, guides and administrators were significantly more likely to self-rate their skills and knowledge as higher after completing the ASQ training ($M = 5.45$, $SD = .90$) than before the training ($M = 4.42$, $SD = 1.30$, $p < 0.001$). Results also indicate that guides and administrators were significantly more likely to self-rate their confidence and self-efficacy as higher after completing the ASQ training ($M = 4.52$, $SD = 1.25$) than before the training ($M = 3.64$, $SD = 1.46$, $p < 0.001$). Finally, results indicate that guides and

Table 2
Descriptive Statistics for Survey Responses

	ASQ Pre-Survey			ASQ Post-Survey			ASQ Alumni Survey		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Attitudes and Beliefs	49	5.20	0.93	41	5.89	1.05	14	6.05	0.58
Using [a developmental screener] is essential for the detection of developmental delays in young children	50	5.14	1.39	41	5.90	1.30	15	5.47	1.55
[Developmental screeners] should be a requirement in early childhood school settings	49	5.43	1.49	42	6.02	1.37	14	6.29	1.54
[Developmental screeners] are a waste of resources (reverse scored)	54	1.78	1.24	42	1.74	1.62	15	1.40	1.06
[Developmental screeners] are effective at detecting students' developmental delays	52	4.87	1.22	42	5.90	1.30	15	5.93	1.16
Using [developmental screeners] leads to harmful labeling of students (reverse scored)	53	2.32	1.22	42	1.95	1.51	15	1.60	1.12
[Developmental screeners] ensure more students get the support that they need	50	4.92	1.61	42	6.14	1.00	15	5.93	1.22
[Developmental screeners] ensure equitable access to developmental resources	51	4.61	1.69	42	5.38	1.72	15	5.33	1.45
[Developmental screeners] are useful for having conversations with caregivers about their child's developmental delays	49	5.78	1.30	41	6.24	1.22	15	6.80	0.41
Skills and Knowledge	62	4.42	1.30	44	5.45	0.90	14	5.81	0.95
I know what universal developmental screening is	63	4.33	1.85	44	6.34	1.03	14	6.43	0.85
I can digest technical information (e.g., research articles) about child development outside of the Montessori context	63	5.21	1.44	44	5.57	1.25	14	6.07	1.07
I regularly use my skills to talk to caregivers about their child's developmental delays	63	4.22	1.68	44	5.14	1.32	14	5.86	1.35
I have a strong understanding of the types of developmental delays that can exist for children	63	4.29	1.56	44	5.27	1.09	14	5.36	1.45
I have the knowledge I need to be able to detect developmental delays within all my students	63	3.48	1.58	44	4.73	1.30	14	5.50	1.40
I have the skills I need to talk to caregivers about their child's developmental delays	63	4.13	1.61	44	5.34	0.99	14	5.79	0.97
I can explain to others the types of developmental delays that can exist for children	62	4.08	1.56	44	5.18	1.19	14	5.50	1.45
I regularly apply my knowledge to detect developmental delays within all my students	62	4.23	1.56	44	5.11	1.37	14	6.00	1.36

Confidence and Self-efficacy	62	3.64	1.46	43	4.52	1.25	16	4.59	1.12
I feel I can always identify all of the students in my school setting who have developmental delays	62	3.58	1.89	43	4.28	1.62	16	4.69	1.49
I am always confident in my ability to have conversations with caregivers about their child's developmental delays	62	3.71	1.76	43	4.67	1.34	16	5.06	1.29
I feel I can effectively support the needs of all my students who have developmental delays	63	3.32	1.61	43	4.35	1.46	16	4.13	1.50
I am confident I can appropriately refer all my students who may be in need of a disability diagnoses	62	3.84	1.67	43	5.09	1.54	16	5.06	1.61
I believe I can always identify difficult-to-detect developmental delays in all my students	62	2.79	1.74	43	3.74	1.54	16	4.00	1.26
Tools and Resources	62	4.21	1.18	43	4.92	1.08	16	5.22	0.84
I have a clear process for having conversations with caregivers about their child's developmental delays	62	3.68	1.60	43	5.12	1.24	16	5.13	1.41
I have the tools I need to provide appropriate interventions for students in need	62	3.34	1.33	43	4.33	1.51	16	4.25	1.81
I am supported by my colleagues in helping my students with developmental delays	62	4.87	1.50	43	5.21	1.21	16	5.75	1.39
I know the appropriate next steps to take after detecting developmental delays within my students	62	4.05	1.65	43	5.47	1.33	16	5.81	1.17
My school administration supports me in helping my students with developmental delays	62	4.77	1.68	43	5.16	1.51	16	6.06	1.12
I feel supported by Montessori leadership in helping my students with developmental delays	63	3.97	1.69	43	4.21	1.67	16	4.31	1.62

administrators were significantly more likely to report their access to resources and support as higher after completing the ASQ training ($M = 4.92$, $SD = 1.08$) than before the training ($M = 4.21$, $SD = 1.18$, $p < 0.001$).

Results addressing the second research question—*Do the effects of participating in the ASQ training persist over time?*—are presented in Table 2 and Table 4. Alumni of the training had significantly higher skills and knowledge ($M = 5.81$, $SD = .95$, $p < 0.05$) and significantly greater access to tools and resources ($M = 5.22$, $SD = .84$, $p < 0.05$) than guides and administrators who recently completed the training (skills and knowledge $M = 5.45$, $SD = .90$; access to tools and resources $M = 4.92$, $SD = 1.08$). No significant differences are shown between the recent completers ($M = 5.89$, $SD = 1.05$) and the alumni group ($M = 6.05$, $SD = .58$, $p = 0.428$) concerning attitudes and beliefs toward universal screeners. No significant differences are shown between the recent completers ($M = 4.52$, $SD = 1.25$) and the alumni group ($M = 4.59$, $SD = 1.12$, $p = 0.328$) for confidence and self-efficacy.

The next set of findings addresses the third research question: *What are the realities and needs of Montessori guides and administrators for serving students with developmental disabilities or delays?* The study results offer valuable insights into the realities and needs of Montessori educators (Figure 2 and Figure 3). According to participants in the study, the increasing number of special needs students requiring additional support has created a pressing demand for effective solutions.

Table 3.
Paired Sample T-Test Results of Guide and Administrator Scores Regarding Universal Screeners and Supporting Students with Developmental Disabilities or Delays

	N	Pre-Survey Mean Score	Post-Survey Mean Score	Difference Score	*SD*	*t (df)*	*p*
Attitudes and Beliefs	29	5.20	5.89	0.69	1.32	2.80 (28)**	0.009
Skills and Knowledge	38	4.42	5.45	1.03	0.77	8.28 (37)***	<.001
Confidence and Self-efficacy	39	3.64	4.52	0.88	1.25	4.42 (38)***	<.001
Tools and Resources	39	4.21	4.92	0.71	0.89	4.96 (38)***	<.001

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4
Independent Sample T-Test Results of Recent Completer and Alumni Scores Regarding Universal Screeners and Supporting Students with Developmental Disabilities or Delays

	N	Post-Survey Mean Score	Alumni Survey Mean Score	Difference Score	*SD*	*t (df)*	*p*
Attitudes and Beliefs	29	5.89	6.05	0.69	1.32	2.80 (28)**	0.009
Skills & Knowledge	38	5.45	5.81	1.03	0.77	8.28 (37)***	<.001
Confidence & Self-efficacy	39	4.52	4.59	0.88	1.25	4.42 (38)***	<.001
Tools & Resources	39	4.92	5.22	0.71	0.89	4.96 (38)***	<.001

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Figure 2.
Reported Realities of Montessori Guides and Administrators

Note: *In the figure, larger circles represent more frequently reported themes while smaller circles represent less frequently reported themes.*

Figure 3
Reported Needs of Montessori Guides and Administrators

Note: *In the figure, larger circles represent more frequently reported themes while smaller circles represent less frequently reported themes.*

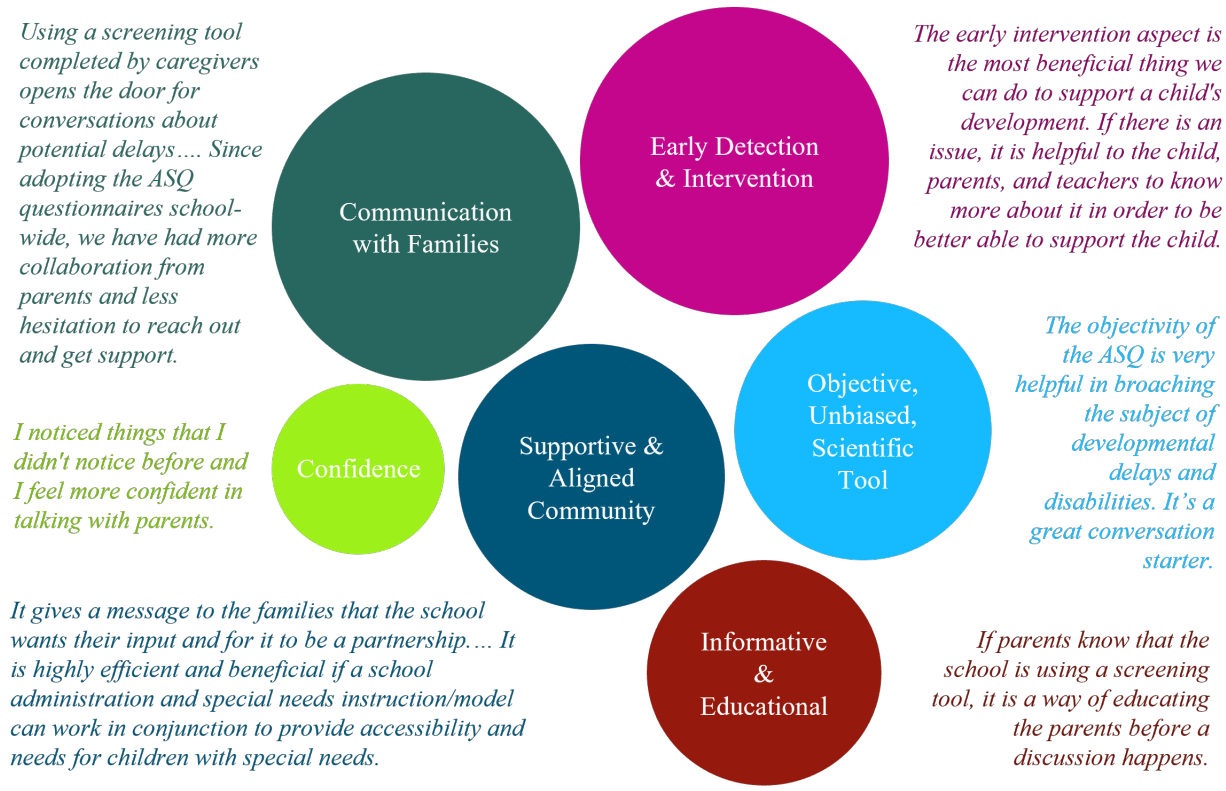
However, the availability and accessibility of resources have struggled to keep pace with these growing needs, putting pressure on policies, finances, and staffing.

In this study, we found that Montessori guides often perceived themselves as bearing the weight of supporting these students, especially in under-resourced schools. This led to concerns about providing adequate assistance or having access to sufficient training. Furthermore, there is a lingering fear of blame and mistrust, likely a historical relic from past challenges, that can permeate groups involved in supporting students who have developmental disabilities or delays. For instance, participating guides and administrators described being worried that caregivers would blame school staff for relaying to parents that their child might have developmental delays. On the other hand, participants were also aware that children's parents and other caregivers, too, feared being blamed. For example, some caregivers fear that in advocating for their children they might be seen as "problems" by teachers. Caregivers may also worry about students being "advised out" of their school by administration citing that the school lacks necessary resources to support their child. Importantly, according to study participants, all members of the community had the potential to be givers or receivers of blame or mistrust.

Despite these challenges, the study shows the incredible dedication of Montessori guides. Most took personal initiatives to seek out additional resources, training, and support. They expressed a profound moral obligation to identify each student's unique needs and tailor the classroom experience accordingly. For example, one guide in the study reported, "I have to educate myself. It's only the right thing to do for them and for me because it's so frustrating when I see a child is struggling and I have no idea what to do or where that struggle came from." Early detection was also seen as key. When a screener is applied universally, it helps avoid picking out and labeling children with concerning behavior: "I believe a schoolwide program normalizes the screening process since it would be done by all families. It reaffirms to caregivers the school's awareness of child development milestones and the importance of early intervention."

Themes around the specific needs of guides and administrators were also identified (Figure 3). There was a clear call for more specialized training and ongoing professional development to effectively support and manage students who have special needs. This is illustrated in the following quote from a guide who participated in the study: "There needs to be an overall retraining. [We] can't just say okay, what you learned

Figure 4
Reported Benefits of Implementing and Using the ASQ



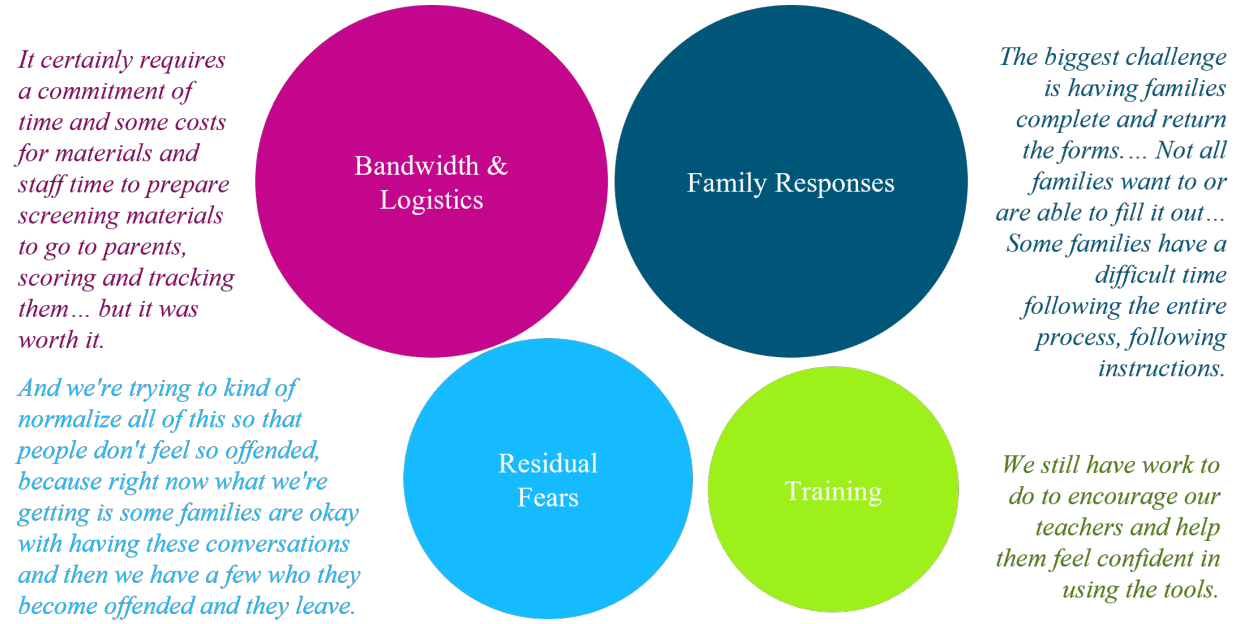
Note: *In the figure, larger circles represent more frequently reported themes while smaller circles represent less frequently reported themes.*

20 years [ago] is still going on today." Participants stressed the importance of keeping up to date with evidence-based strategies and the need for more adaptable, flexible, and aligned systems within the Montessori framework to cater to all types of learners. While the Montessori approach and training are highly regarded for their value in individualizing instruction, some participants felt strict standards and practices could sometimes act as barriers to providing necessary support for students who have special needs.

Establishing trust-based relationships with service providers and involving Montessori trainers in understanding current needs were seen as crucial steps. A strong emphasis was also placed on the importance of specialized staff dedicated to supporting students who have special needs, as well as the value of forming support groups and providing opportunities for guides to connect and learn from one another. A community-based approach, involving all members and distributing the workload, can be a particularly effective solution for schools that do not have the resources to hire a full-time specialized staffer. As one administrator noted, "[We need] staff training, collaboration, changes in school policies, having people partner to accomplish change and implement [a] call to action."

The final set of themes was identified with respect to the fourth research question: *What are the perceived benefits and challenges of the implementation and use of the ASQ by Montessori community members?* Thematic analyses reveal that participants viewed the ASQ training and tool as highly beneficial (Figure 4). The training boosted participants' confidence and self-efficacy, empowering them to more effectively support students. For example, one guide reported, "Our confidence level is greater, and the fact that…the staff, the teachers, the primary and toddler teachers are just discussing a lot more and talking about ways that we are refining our resource list and referral list." Furthermore, the training enabled early detection and facilitated communication with parents and caregivers. Study participants considered the ASQ a reliable and externally validated tool that normalized the screening process to provide

Figure 5
Reported Challenges of Implementing and Using the ASQ



Note: *In the figure, larger circles represent more frequently reported themes while smaller circles represent less frequently reported themes.*

valuable information and resources for guides, parents, and families. This is illustrated in the following quote from a guide who participated in the study: "[The] ability to screen all children with a consistent set of benchmarks across developmental domains. [It] avoids any feelings a parent might have that their child is being unfairly singled out, because everyone is being screened."

On the other hand, thematic analyses also reveal challenges in implementing the ASQ (Figure 5). Challenges included concerns about bandwidth and logistics, families' resistance to change, and the need for buy-in and training among colleagues. To address these challenges and ensure successful implementation, participants stressed the importance of creating seamless support systems and fostering collaboration within the school community. Overall, Montessori guides and administrators perceived the ASQ as a valuable tool for detecting and supporting students who have developmental delays or disabilities.

Discussion

This study explores the realities and needs of Montessori educators who aim to support students who have special needs. It further explores the perceptions of, and associated benefits and challenges for, Montessori educators using the ASQ before and after completing a specialized Montessori-centered ASQ training. The results suggest that the ASQ training and tool were perceived as beneficial and valuable. The training positively influenced participants' attitudes, beliefs, skills, knowledge, confidence, self-efficacy, and access to resources. In addition, the effects of the training were sustained over time for alumni concerning their attitudes and beliefs, as well as confidence and self-efficacy, in using universal screeners. Importantly, research suggests educators' positive attitudes and beliefs around supporting students who have disabilities are essential for effective inclusive teaching practices (Jordan et al., 2009). This study also provides preliminary evidence that positive effects of training as related to Montessori educators' skills and knowledge, as well as access to tools and resources training, may increase over time. This is a substantial finding, given that participating in teacher special education training does not always guarantee satisfactory preparation (Forlin & Chambers, 2011).

Qualitative findings suggest that addressing challenges and needs identified around supporting students who have disabilities, and implementing the ASQ, are crucial for creating more inclusive classrooms. Findings further include the establishment of a culture of trust, provision of specialized training and support, alignment of systems and resources, integration within

Table 5
Recommendations by Stakeholder

Guides	• Have conversations with school personnel and parents/families about students who may need special support early and often. • Develop a plan of support for students with special needs with administration, specialized staff, parents, and available resources. • Establish trusting relationships with service providers to ensure coordinated support for students with special needs.
Administrators	• Provide additional and ongoing specialized training and professional development opportunities for guides and administrators to effectively support and manage students with special needs. • Sustain the positive effects of the ASQ training over time by providing ongoing support and reinforcement. • Foster a culture of trust and collaboration among guides, administrators, and parents to promote transparent communication and collaboration. • Work to align systems and resources to support all types of learners, including students with special needs. • Establish specialized professional staff positions, such as directors of inclusion or school-wide occupational therapists, dedicated to supporting students with special needs; or implement a community-based approach that distributes the workload and involves all stakeholders in supporting students with developmental disabilities or delays.
Trainers	• Ensure that training programs are responsive to the current needs and realities and include training on evidence-based strategies for supporting neurodivergent students and those with developmental disabilities or delays.
Leaders and Policy Makers	• Provide adaptable, flexible, and aligned systems within the Montessori framework, policies, and practice standards to support all types of learners, including students with special needs wherever possible. • Work closely with recognition organizations to promote inclusive practices (e.g., make universal screening a requirement or recommendation alongside recognition). By aligning policies and practices, schools can enhance the credibility and consistency of their inclusive policies. • Involve Montessori trainers in understanding the present needs of educators and aligning requirements and policies accordingly. • Create specialized support groups and opportunities for guides and school personnel to connect and learn from each other.

the Montessori framework, and implementation of universal screening tools such as the ASQ. To address issues identified in this study, a set of practice and policy recommendations were developed (Table 5). Importantly, while findings from this study suggest that participating in the ASQ training in a Montessori setting is beneficial, truly inclusive education requires a coordinated team. This includes highly trained specialists with expertise in developmental disabilities (Mastropieri et al., 2011). In addition, the ASQ is but one important tool, and to facilitate inclusive education practices, Montessori educators may also benefit from a deeper dive into developmental disabilities in their teacher preparation courses, as is supported in the literature (Zagona et al., 2017).

The first step in serving children with developmental and learning difficulties is to identify as accurately as possible *who* these children are and *with what obstacles* they may be struggling. It is well established in the developmental sciences that early intervention is more effective and more efficient for supporting children who need interventions and therapies in reaching their growth potentialities (Hirai et al., 2018; National Center for Learning Disabilities, 2020). Developmental screening tools, such as the ASQ, are widely accepted as valid and reliable for tracking developmental trajectories and flagging discrepancies that are worth investigating or giving a little extra attention and observation (Bricker et al., 2010; Macy, 2012; McCrae & Brown, 2018).

Montessorians are keenly aware of the need for and value of early intervention—or as they commonly say, "early aid to life." Maria Montessori was perhaps the earliest and most vocal advocate for early intervention. Her groundbreaking theory of the four planes of development expounds a uniquely vital role of the first plane of development—the plane of the absorbent mind and its sensitive period of development. During this period, intervention is vastly more effective because of the natural developmental processes taking place and general neuroplasticity. Montessori explains what happens when developmental deviations are not identified early: "Many defects which became permanent, such as speech defects, the child acquires through being neglected during the most important period of his age, the period between three and six, at which time he forms and establishes his principal functions" (Montessori, 1912, p. 34). She also advocates for early identification and intervention:

> *If for the attention which we paid to the correction of linguistic defects in children in the upper grades we would substitute a direct direction of the development of the language while the child is still young our results would be much more practical and valuable. (Montessori, 1912, p. 228)*

The value of the ASQ training to Montessori educators is evidenced from this study. Through professional development tailored to Montessorians and high-fidelity implementation of the ASQ tool, Montessori guides can refine their observations of the unfolding development of each student and confidently advocate for individual needs of each and every child. Universal screening can lay a foundation in Montessori education to fulfill Montessori's plea that we do not "neglect" a child's developmental need for aid to life during the first plane—the *best* plane for effective interventions.

We have discussed the practical issues of inclusive education and now turn to implications for research. Future research considerations include replicating this study with a larger diverse sample. Future research may also consider more deeply exploring the relationship between guide and caregiver in Montessori settings, given the importance of a sympathetic and constructive relationship in supporting students who have special needs (Sucuoğlu & Bakkaloğlu, 2018). Additionally, research demonstrates the challenges of preparing adults for inclusive classrooms (Forlin & Chambers, 2011). Specific training, and keeping up with the current science of learning and development of students who have disabilities, is critical to supporting these students and their families (Creemers et al., 2012; Zagona et al., 2017). Little research exists on the current preparation practices of the Montessori guide. Therefore, an empirical examination of the preparation of the Montessori teacher may be a worthwhile endeavor.

In conclusion, as Montessori schools aim to become more inclusive, Montessori educators can be better prepared to serve children with more diverse needs by having the necessary tools and training. By doing so, Montessori educators can confidently collaborate with families and school staff to identify, support, and advocate for each child's individual needs. This is the path to successful and joyful Montessori inclusion *where every child can belong*. This study provides evidence that Montessori educators benefit from the ASQ developmental screening training. Through training and consistent implementation of the ASQ, Montessori educators can gain a better understanding of developmental milestones, more effectively observe their students, and more confidently advocate for students' support needs.

Contributors

AS initiated and conceived the project. AS, EP, DAV, and CM designed and operationalized the project. EP conducted the research study from start to finish. DAV developed and offered the online ASQ training. CM and a team of assistants supported the online training. EP conducted the literature review. AS, CM, and DAV identified relevant grey literature. EP conducted data collection and data analysis. All authors supported the interpretation of the findings and drafted the manuscript. All authors reviewed the study findings, critically revised the manuscript at all stages, and approved the final version before submission.

Author Information

Elyse L. Postlewaite is a postdoctoral researcher at Montclair State University. She can be reached at postlewaitee@montclair.edu. https://orcid.org/0000-0002-0453-4371

Ayize Sabater is executive director of the Association Montessori International of the United States. He can be reached at ayize@amiusa.org. https://orcid.org/0009-0007-4729-018X

Dalia Avello-Vega is a lecturer at Portland State University. She can be reached at avello.dalia@gmail.com. https://orcid.org/0000-0001-6235-1103

Catherine Massie is cofounder and director of the Montessori Medical Partnership for Inclusion. She can be reached at cnehringmassie@gmail.com. https://orcid.org/0009-0004-0930-8527

References

American Montessori Society. (n.d.). *Montessori Inclusion Endorsement*. https://amshq.org/Educators/Montessori-Careers/Become-a-Montessori-Educator/Montessori-Inclusion-Endorsement

Association Montessori Internationale. (n.d.). *Become An AMI teacher*. https://montessori-ami.org/training-programmes/become-ami-teacher

Bellman, M., Byrne, O., & Sege, R. (2013). Developmental assessment of children. *BMJ, 346*, e8687. https://doi.org/10.1136/bmj.e8687

Bricker, D., Squires, J., & Clifford, J. (2010). Developmental screening measures stretching the use of the ASQ for other assessment purposes. *Infants and Young Children, 23*(1), 14–22. https://doi.org/10.1097/IYC.0b013e3181c816cc

Bricker, D., Squires, J., Kaminski, R., & Mounts, L. (1988). The validity, reliability, and cost of a parent-completed questionnaire system to evaluate at-risk infants. *Journal of Pediatric Psychology, 13*(1), 55–68, https://doi-org.eux.idm.oclc.org/10.1093/jpepsy/13.1.55

Centers for Disease Control and Prevention. (2024, February 9). *Environmental public health tracking: Developmental disabilities*. Centers for Disease Control and Prevention. https://www.cdc.gov/environmental-health-tracking/php/data-research/developmental-disabilities.html

Creemers, B., Kyriakides, L., & Antoniou, P. (2012). *Teacher professional development for improving quality of teaching*. Springer. https://doi.org/10.1007/978-94-007-5207-8

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). Sage Publications.

Danner, N., & Fowler, S. (2015). Montessori and non-Montessori early childhood teachers' attitudes towards inclusion and access. *Journal of Montessori Research, 1*(1), 28–41. https://doi.org/10.17161/jomr.v1i1.4944

Division for Early Childhood of the Council for Exceptional Children. (2014). DEC recommended practices in early intervention/early childhood special education 2014. https://www.dec-sped.org/dec-recommended-practices

Downing, J. E., & Peckham-Hardin, K. D. (2007). Inclusive education: What makes it a good education for students with moderate to severe disabilities?. *Research and Practice for Persons with Severe Disabilities, 32*(1), 16–30. https://doi.org/10.2511/rpsd.32.1.16

Epstein, A. (1998). "The behavior part is the hardest": Montessori teachers and young children with challenging behaviors. *Montessori Life, 10*(4), 24–25.

Forlin, C., & Chambers, D. (2011). Teacher preparation for inclusive education: increasing knowledge but raising concerns. *Asia-Pacific Journal of Teacher Education, 39*(1), 17–32. https://doi.org/10.1080/1359866x.2010.540850

Hirai, A. H., Kogan, M. D., Kandasamy, V., Reuland, C., & Bethell, C. (2018). Prevalence and variation of developmental screening and surveillance in early childhood. *JAMA Pediatrics, 172*(9), 857–866. https://doi:10.1001/jamapediatrics.2018.1524

Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research, 15*(9), 1277–1288. https://doi.org/10.1177/1049732305276687

Jordan, A., Schwartz, E., & McGhie-Richmond, D. (2009). Preparing teachers for inclusive classrooms. *Teaching and Teacher Education, 25*(4), 535–542. https://doi.org/10.1016/j.tate.2009.02.010

Kamens, M. W., Loprete, S. J., & Slostad, F. A. (2000). Classroom teachers' perceptions about inclusion and preservice teacher education. *Teaching Education, 11*(2), 147–158. https://doi.org/10.1080/713698971

Kefallinou, A., Symeonidou, S., & Meijer, C. J. W. (2020). Understanding the value of inclusive education and its implementation: A review of the literature. *Prospects, 49*(3), 135–152. https://doi.org/10.1007/s11125-020-09500-2

Khan, L. (2019). Detecting early developmental delays in children. *Pediatric Annals, 48*(10), e381–e384. doi.org/10.3928/19382359-20190918-02

Long, T., Ferranti, N., & Westerman, C. (2022). Children with disabilities attending Montessori programs in the United States. *Journal of Montessori*

Research, *8*(2), 16–32. https://doi.org/10.17161/jomr.v8i2.18639

Macy, M. (2012). The evidence behind developmental screening instruments. *Infants & Young Children*, *25*(1), 19–61. https://doi:10.1097/IYC.0b013e31823d37dd

Macy, M. (2022). Early identification of risk, developmental delay, or disability in young children: Connecting families with services during a global health crisis. In J. Pattnaik & M. Renck Jalongo (Eds.), *The impact of COVID-19 on early childhood education and care. Educating the young child, vol 18*. Springer International Publishing. https://doi.org/10.1007/978-3-030-96977-6_12

Mastropieri, M. A., Scruggs, T. E., & Mills, S. A. R. A. (2011). Special education teacher preparation. In J. M. Kauffman & D. P. Hallahan (Eds.), *Handbook of special education* (pp. 58–69). Routledge. https://doi.org/10.4324/9780203837306

McCrae, J. S., & Brown, S. M. (2018). Systematic review of social–emotional screening instruments for young children in child welfare. *Research on Social Work Practice*, *28*(7), 767–788. https://doi.org/10.1177/1049731516686691

Montessori, M. (1912). *The Montessori method: Scientific pedagogy as applied child education in "The Children's Houses," with additions and revisions by the author.* (A. E. George, Trans.). Frederick A. Stokes Company. https://doi.org/10.1037/13054-000

Montessori, M. (1971). *The four planes of education*. Association Montessori Internationale.

Montessori, M. (1989). *The formation of man*. Clio.

Murray, A., Casquejo-Johnston, L., Sabater, A., & Clark, K. (2020). Hidden Black voices in the history of Montessori education. *American Educational History Journal*, *47*(2), 205–221.

National Center for Learning Disabilities. (2020). *Early detection of learning difficulties: From "recognizing risk" to "responding rapidly."*

National Center for Montessori in the Public Sector. (2023, January 18). Montessori Census. https://www.montessoricensus.org/

Rydz, D., Shevell, M. I., Majnemer, A., & Oskoui, M. (2005). Topical review: Developmental screening. *Journal of Child Neurology*, *20*(1), 4–21. https://doi.org/10.1177/08830738050200010201

Sucuoğlu, N. B., & Bakkaloğlu, H. (2018). The quality of parent-teacher relationships in inclusive preschools. *Early Child Development and Care*, *188*(8), 1190–1201. https://doi.org/10.1080/03004430.2016.1261124

U.S. Department of Education. (2017, May 3). *Sec. 300.111 Child find*. Individuals with Disabilities Education Act. https://sites.ed.gov/idea/regs/b/b/300.111

Van Mieghem, A., Verschueren, K., Petry, K., & Struyf, E. (2020). An analysis of research on inclusive education: A systematic search and meta review. *International Journal of Inclusive Education*, *24*(6), 675–689. https://doi.org/10.1080/13603116.2018.1482012

Veldhuizen, S., Clinton, J., Rodriguez, C., Wade, T. J., & Cairney, J. (2015). Concurrent validity of the Ages and Stages Questionnaires and Bayley Developmental Scales in a general population sample. *Academic Pediatrics*, *15*(2), 231–237. https://doi.org/10.1016/j.acap.2014.08.002

Weitzman, C., Wegner, L. M., McGuinn, L. J., Mendelsohn, A. L., Williams, P. G., Stancin, T. (2015) Promoting optimal development: Screening for behavioral and emotional problems. *Pediatrics*, *135*(2), 384–395. https://doi.org/10.1542/peds.2014-3716

Zagona, A. L., Kurth, J. A., & MacFarland, S. Z. C. (2017). Teachers' views of their preparation for inclusive education and collaboration. *Teacher Education and Special Education*, *40*(3), 163–178. https://doi.org/10.1177/0888406417692969

Appendix
Cronbach Alpha Scores by Scale

To what extent do you disagree or agree with the following statements about universal developmental screening tools?		Cronbach's Alpha Pre-Survey	Cronbach's Alpha Post-Survey
Using them is essential for the detection of developmental delays in young children	Attitudes and Beliefs	0.807	0.890
They should be a requirement in early childhood school settings			
They are a waste of resources (reverse scored)			
They are effective at detecting students' developmental delays			
Using them leads to harmful labeling of students (reverse scored)			
They ensure more students get the support that they need			
They ensure equitable access to developmental resources			
They are useful for having conversations with caregivers about their child's developmental delays			
I know what universal developmental screening is	Skills and Knowledge	0.903	0.888
I can digest technical information (e.g., research articles) about child development outside of the Montessori context			
I regularly use my skills to talk to caregivers about their child's developmental delays			
I have a strong understanding of the types of developmental delays that can exist for children			
I have the knowledge I need to be able to detect developmental delays within all my students			
I have the skills I need to talk to caregivers about their child's developmental delays			
I can explain to others the types of developmental delays that can exist for children			
I regularly apply my knowledge to detect developmental delays within all my students			
I feel I can always identify all of the students in my school setting who have developmental delays	Confidence and Self-efficacy	0.880	0.886
I am always confident in my ability to have conversations with caregivers about their child's developmental delays			
I feel I can effectively support the needs of all my students who have developmental delays			
I am confident I can appropriately refer all my students who may be in need of a disability diagnoses			
I believe I can always identify difficult-to-detect developmental delays in my students			

I have a clear process for having conversations with caregivers about their child's developmental delays	Tools and Resources	0.830	0.853
I have the tools I need to provide appropriate interventions for my students in need			
I am supported by my colleagues in helping my students with developmental delays			
I know the appropriate next steps to take after detecting developmental delays within my students			
My school administration supports me in helping my students with developmental delays			
I feel supported by Montessori leadership in helping my students with developmental delays			

Note: *The stem for the survey was, "To what extent do you disagree or agree with the following statements about universal developmental screening tools?"*

The Critical Montessori Model: Supporting the BIPOC Community Through Montessori Research and Practice

Genevieve D'Cruz, independent researcher

Keywords: *Montessori education, critical race theory, BIPOC teachers, BIPOC students*

Abstract: Despite an increase in race-related Montessori research over the past decade, the Montessori community lacks a unified framework to examine the Montessori Method and its philosophy through a critical racial lens. Without explicit discussions or universal training about race and whiteness, the Montessori Method can be interpreted through a color-blind lens unless scholars and practitioners explicitly use a critical racial perspective. This paper proposes the Critical Montessori Model (CMM), which centers high-fidelity Montessori practice—including the Montessori materials, child development, respect for and relationships with children, and observation as a learning tool—encompassed by critical race theory, as a way for researchers and practitioners to interpret the Montessori Method. This theoretical model critiques systems of whiteness and instead proposes centering the lived experiences and knowledge of the BIPOC community, drawing from theories such as culturally relevant/sustaining pedagogy and community cultural wealth (CCW). The hope is that this model will be the start of calibration among critical Montessori research to unify Montessori practitioners in their interpretations of Montessori education and the possibilities it provides for anti-racist education that centers Black, Indigenous, and other people of color (BIPOC). The paper ends with recommendations for future research using the CMM as a framework and calls for more BIPOC voices to be highlighted in the Montessori research community.

The Montessori Method, a progressive, child-centered model of education, has been practiced since the early 1900s, when Maria Montessori opened her first school in Rome. Montessori was a physician who was asked to work with a group of poor children in San Lorenzo, Rome. Montessori was a supporter of peace education, developing her method through observation of the children she was tasked to support. Her method spread quickly as educators and communities learned about its focus on supporting and teaching children to be independent and self-sufficient while following their natural trajectory of growth and development. Roughly 16,000 Montessori schools operate worldwide in more than 140 countries (Debs et al., 2022), with more than 3,000 Montessori schools in the United States, 570 of those U.S. schools being public (National Center for Montessori in the Public Sector, 2022). Despite the popularity of the method, it is not trademarked, which therefore leads to a variety of ways in which Montessori education is practiced and interpreted (Debs et al., 2022). Although Montessori education has a reputation in the United States of being aimed at White, wealthy families, various Montessori leaders have recently created more opportunities and pathways to equity through sponsorship and support of the Association Montessori Internationale and the American Montessori Society. Such pathways include ongoing research; development of anti-bias, anti-racist courses for students; and professional development centering justice, equity, diversity, and inclusion.

In the Montessori research community, studies have attempted to establish what it means to practice high-fidelity Montessori education, ascertain which materials are essential, and define specifically what makes a classroom Montessori-based (Lillard & Heise, 2016; Murray et al., 2019). In a census study about Montessori schools, many schools' policies agreed on the following core principles of Montessori implementation: supporting Montessori philosophy, mixed-age groups, Montessori-trained teachers, Montessori materials, students' freedom of choice, and uninterrupted work time (Debs et al., 2022). Montessori research has also addressed topics such as racial diversity in public schools; anti-bias, anti-racist teaching in schools; and racial disproportionality in disciplinary actions (Brown & Steele, 2015; Canzoneri-Golden & King, 2020; Debs, 2019).

While the Montessori research community continues to expand its scope of research, a limited number of studies focus on BIPOC Montessori educators. With an estimate of more than 257,000 BIPOC Montessori educators currently in the field in the United States, there is a wealth of experiences from which to learn (Zippia, 2024). BIPOC Montessori educators historically have used the method to support their communities of color, including communities whose members are less wealthy (Debs, 2019). We know BIPOC Montessori educators have successfully used Montessori principles to support their communities and sustain their cultures (Debs, 2019), but existing Montessori research lacks a focus on BIPOC Montessori educators' strengths and teaching approaches. With an increase in public Montessori schools in the United States, some research showing that BIPOC Montessori educators have lasting impacts on BIPOC students (Lillard et al., 2023), and 55% of public Montessori school students being BIPOC (Debs, 2016), more studies are required to better understand BIPOC Montessori educators' experiences, specifically in public Montessori schools. Such research requires a focus on educators' successful practices and strengths, as well as a critical racial lens through which to view Montessori education to ensure it is implemented critically, and reflects and builds on the experiences of BIPOC educators and students.

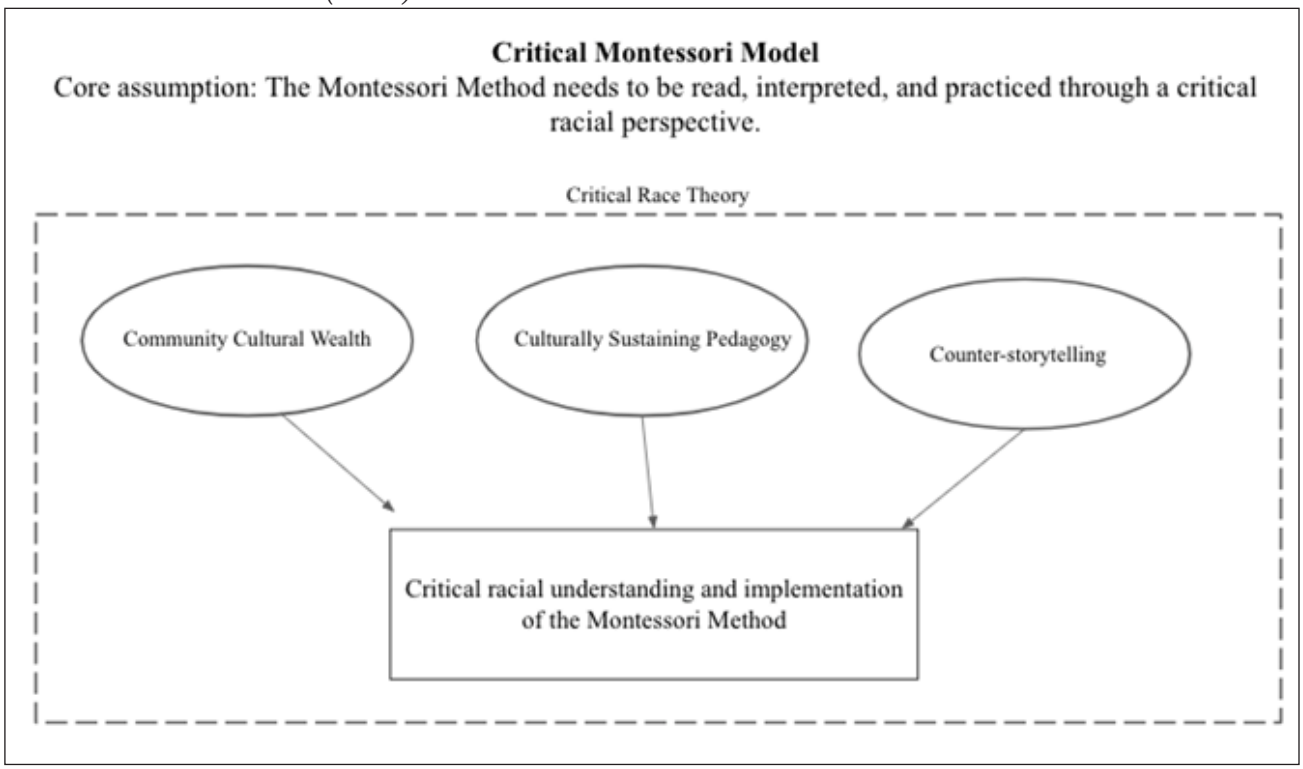
I propose a framework, the Critical Montessori Model (CMM), which I've created for Montessori research and practice. The CMM centers BIPOC students and educators, values their perspectives, views their experiences as strengths, and describes how to implement Montessori practice in a critical racial way. The CMM is a model for interpreting and practicing Montessori methods. Framed by critical race theory (Bell, 1993) and critiques of White epistemologies (Leonardo, 2009), the CMM[1] is a way for the Montessori community to view BIPOC students and educators in such a way that values their strengths, assets, and lived experiences. The model explicitly centers race and the racialized experiences of BIPOC students, educators, and their communities, and thus disrupts the White epistemological assumptions of color blindness and individualism (Leonardo, 2009) within current Montessori methods. My background as an Asian American Montessori educator has led me to the work of introducing critical theory as a lens through which to interpret the Montessori Method's philosophy and practice.

This paper is an introduction to the CMM, its elements, and how to use those elements with Montessori

[1] Appendix 1 gives an overview of the acronyms and theories used in this paper.

Figure 1

The Critical Montessori Model (CMM)



education as the focus. I present an overview of whiteness in U.S. education and contextualize this discussion around the assumptions of White epistemologies in the Montessori Method. I discuss critical race theory and how it forefronts the experiential knowledge of BIPOC community members. I then discuss how other critical theories (community cultural wealth, culturally sustaining pedagogy, and counter-storytelling) extend critical race theory into classroom practice. These theories applied in the classroom could help educators and teacher trainers interpret and practice the Montessori Method in critical and identity-affirming ways, de-centering whiteness as the norm and centering the BIPOC experience. I conclude with recommendations for how the Montessori community can use the CMM to interpret the Montessori Method.

What Is the Critical Montessori Model?

I examine and confront the ideological structures that provide a strong foundation for the method but also constrain it in certain aspects. The CMM (see Figure 1) includes important Montessori principles, such as the materials, shared language and understanding of child development; the use and purpose of observation; and the relationships between adults and children. The shared language and understanding of child development is, ideologically, what distinguishes the Montessori Method from other alternative or holistic methods. Montessori educators use a distinctly Montessori lens to view child and student development.

The CMM brings together a variety of theories and strategies to uplift BIPOC students' and educators' identities. None of these theories individually encompasses the entire Montessori experience. Because the Montessori Method is comprised of a combination of tangible materials and lessons plus philosophy and perspective, and exists in white supremacist structures in the United States, the CMM is necessary to address teaching methods, guide educator perspectives and interpretations of their students' experiences, and uplift BIPOC identities. Culturally sustaining pedagogy (CSP) has the following key features: valuing community languages and ways of being; schools being accountable to the community; curricula that connect to cultural and linguistic histories; and sustaining cultural and linguistic practices while providing access to the dominant culture (Paris & Alim, 2017). Whereas CSP encourages educators to value students' ways of being and experiences, the community cultural wealth (CCW) framework through its lens offers educators guidance on precisely *how* to identify their own and their students' strengths. Additionally, both aforementioned theories support, yet do not explicitly address, counter-

storytelling. Counter-storytelling is a powerful and necessary tool to combat dominant (White) narratives, and must be emphasized as significant so as not to get lost in the teaching strategies and lenses of CSP and CCW. As critical race theory assumes whiteness as the standard, or norm, CSP and CCW frameworks help provide ways to resist centering whiteness by centering BIPOC community members. Counter-storytelling also gives a groundwork from which to examine how racism pervades education (Canzoneri-Golden & King, 2023).

Although the aforementioned frameworks could be used individually to interpret Montessori education, they do not fully encompass all aspects of Montessori principles. Research shows that even with culturally relevant and anti-bias, anti-racist practices intentionally focused on equity training, non-Black teachers still hold deficit perspectives about their BIPOC students (Canzoneri-Golden & King, 2020). Canzoneri-Golden and King (2023) offered two approaches (culturally relevant pedagogy and anti-bias/anti-racist practices) to support BIPOC students in the Montessori classroom. The CMM uses various theories, including culturally relevant pedagogy, to establish a new framework altogether. Again, an emphasis on child development and a shared understanding of philosophy are what distinguish Montessori education—and thus the CMM—from current emergent educational frameworks and theories. I propose a theoretical model to change the way Montessori educators look at the Montessori Method in such a way that centers the voices and experiences of BIPOC community members while acknowledging Montessori philosophy. The core assumption of the CMM is that the Montessori Method needs to be read, interpreted, and practiced through a critical racial perspective. Such implementation considers the racial power structures and white supremacy BIPOC community members face (Ladson-Billings, 1998).

The Role of Whiteness in U.S. Education and the Montessori Community

Leonardo (2009) described racial privilege as the idea that White individuals are advantaged simply by being racially constructed as White. White individuals, or individuals who possess aspects of whiteness—through culture, language, hair texture, and more—benefit from racial privilege whether or not they are aware of it and despite any attempts to distance themselves from whiteness (Leonardo, 2009). The perpetuation of White racial privilege and systems of white supremacy appears in multiple ways, one being color blindness (Bonilla-Silva, 2018; Leonardo, 2009). Color blindness appears in the Montessori community through the curriculum taught during Montessori teacher training, the lack of representation of BIPOC Montessori educators' and students' voices, and demographics of the public Montessori community dictating whose voices are represented. Because critical race theory assumes whiteness is the dominant standard, a lack of explicit anti-racism means racism is automatically embedded into Montessori training and philosophy as it is interpreted in the United States. Racial inequality is present in American infrastructure, through policies, laws, practices, cultural norms, and narratives (Archer, 2022). For example, my Montessori training taught that a normalized student works quietly and independently. However, this concept results in the othering of students who do not work quietly or independently due to personality or cultural background.

The structural nature of racism in the United States is inescapable for the education system (Leonardo, 2009), pervading Montessori and conventional schools. Current Montessori programs assume White epistemologies that normalize White ways of knowing (racial knowledge). These programs lack consistent anti-racist practices, including honoring the lived experiences and racial knowledge of the BIPOC community (Delgado & Stefancic, 2007). Framed by White epistemologies, Montessori training, accreditation programs, and schools continue to function in a historically White and racist education system.

Okun (2021) described characteristics of white supremacy, including individualism, the idea that there is only one right way, objectivity, worship of the written word, and more. For example, a characteristic of white supremacy is worship of the written word. As an antidote to this characteristic, training centers could consider storytelling, art, or other forms of demonstrating knowledge instead of written theoretical essays. Rather than focus on one right way to use a material, educators might open up to the idea that a child use a material in a different way from what they were shown. This is a particular challenge teachers face, in attempts to distinguish between purposeful exploration and fantasy play. But were teachers to acknowledge that assuming "one right way" is a characteristic of white supremacy, they might engage in more critical conversations about exploring multiple ways to use a material. Additionally, the emphasis on objective observation in Montessori training assumes there is such a thing as objectivity, and thus, an ultimate truth. To counter this, the Montessori

community could acknowledge that all individuals have different lived experiences and realities, so there is no such thing as objectivity.

If Montessori philosophy centralized race, it could address hierarchical and oppressive systems, at the same time uplifting students' racial identities (Bonilla-Silva, 2018). Because of the lack of explicit centering of race in Montessori education, Montessori spaces are not always culturally inclusive of BIPOC community members and require active work to become inclusive spaces.

Critical Race Theory and Montessori Education

To disrupt the pervasiveness of whiteness in education, the CMM is grounded in critical race theory, which is based on the following tenets (Delgado & Stefancic, 2007; Harris, 1993; Ladson-Billings, 1998; Omi & Winant, 2014): storytelling and experiential knowledge of oppression to uplift the lived experiences of minoritized groups; racism as normal and permanent, and whiteness as property; a critique of the slow process of civil rights; interest convergence; a strong commitment to social justice; and that minoritized groups are racialized differently in ways that all benefit whiteness.

Bell's (1993) work around the permanent nature of racism asserts that racism is not only endemic to the United States, but is so pervasive and permeates so much of U.S. society that it is permanent. Using critical race theory, I assume racism is built into U.S. society and thus the structures of Montessori education in the United States. This permanence of racism in society presents itself in the Montessori community, through teaching practices and training centers. This means racism appears in teaching practices, classrooms, and training centers around the United States *because* racism is inherent in the ways institutions function. The mere fact that Montessori education is practiced in the United States implies that, as racism permeates U.S. structures and perpetuates racial inequality, it also permeates Montessori structures and practices. Without an explicit commitment to and discussion of anti-racism in the Montessori community, it, as the United States, will remain inherently racist.

Bell (1993) maintains that interest convergence is how and why change occurs for the BIPOC community, meaning the BIPOC community does not progress and has not historically progressed unless the White community also benefited. In the context of the Montessori community, this means the only way progress would occur for BIPOC community members were if White individuals also benefited. The critique of liberalism is a critique of racial progress—a critique which maintains that change in the racial constructs in the United States will happen slowly and over time. By critiquing liberalism as a tenet of critical race theory, critical race theorists push for radical and monumental changes (Ladson-Billings, 1998). I interpret the critique of liberalism as a critique of Montessori classrooms' small, surface-level actions, such as making sure art and books are representative of all students. Although representation is important, it is not enough to stop there. Only explicit anti-racist teaching can benefit BIPOC Montessori educators and students; anything else is insufficient and performative.

Storytelling and counter-storytelling emphasize the importance of lived experiences as knowledge. Counter-storytelling is a method that centers stories of those historically oppressed due to racialization and racism (Ladson-Billings, 1998). Counter-storytelling and experiential knowledge mean examining the experiences and practices of BIPOC Montessori educators, and considering their experiences to be knowledge.

Finally, Harris's (1993) work describes whiteness as property. Those who "possess" whiteness benefit from the way U.S. society is structured (Harris, 1993). Historically, individuals benefiting from White racial privilege received benefits in intangible property such as status, customs, or respect for their values (Harris, 1993). Whiteness eventually became, and still is today, the norm around which everything else was measured. In a Montessori context, whiteness as property appears through whiteness as the norm, whereas anything non-White (language, customs, art, belief systems) is a "cultural" item, photo, or object. Thus, Montessori training centers whiteness, around which other "cultural" concepts are added.

Forms of systemic racism vary. BIPOC community members experience racism differently based on their various racializations (Delgado & Stefancic, 2007). Critical race theory allows me to acknowledge anti-Blackness and how it is woven into U.S. society.[2] Bell

[2] Anti-Blackness is a unique form of racism; the anti-Blackness embedded in U.S. culture, society, and systems functions to protect and amplify whiteness (Dumas & Ross, 2016). Beneath whiteness is an anti-Black sentiment that causes rifts not only between the White and BIPOC community, but also serves to divide racial groups within the BIPOC community (Dumas & Ross, 2016). Even when it appears the United States is making racial progress, interests and rights of Black individuals are always subject to destruction (Bell, 1993). Bell (1993) described the anti-Black racism in the United States as a dynamic that will never disappear, asserting that even small events that look

(1993) describes the unique racism Black individuals face in the United States, despite the semblance of racial progress. There are differences in how individuals of color experience racism[3] (Delgado & Stefancic, 2007), but for the purposes of this conversation I examine White and non-White students. Additionally, critical race theory allows me to prioritize the BIPOC experience and acknowledge that whiteness is considered the standard, or norm, of practice in the education community.

Normalization Through the Lens of Critical Race Theory

Critical race theory provides a foundation to examine the aspects of race and power included—or excluded—in the Montessori Method. It affects the way I view and interpret Montessori theory and the Method. For example, "normalization" is a term used in the Montessori community to refer to a child who is peaceful and balanced. Normalization occurs once a child is able to work uninterrupted, forms habits such as concentration and focus, and understands how to function in the classroom and with peers (understanding the norms and ways of being in class). Normalization makes no mention of race or societal structures. As I consider normalization through a critical racial lens, I am left with questions: *How do whiteness and racism present in the classroom and in children's relationships? Can children normalize if their classroom or school mimics racist structures? What does normalization look like if we consider oppressive systems that inevitably show up in the classroom?* For example, when examining discipline disproportionality, Montessori schools still encounter racially disproportionate discipline outcomes (Brown & Steele, 2015). Canzoneri-Golden and King (2020) observed that the adultification of Black children is one of the ways educators contribute to bias and discipline disparities. Rather than question what children are doing wrong, a critical racial lens pushes us to question what systems and structures are in place that affect the children. For example, if Black students are frequently being corrected in the classroom, they are getting the same message that what they are doing, their way of being, *they* are wrong outside the classroom. If educators interpret normalization through a dominant (White) lens, they might expect a student to act, talk, or think in a particular way. Rather than giving the student an opportunity to embody themselves, this instead creates an archetype for the child to live up to. If we question normalization and interpret it through a CMM lens, we might define it as a child who is interested in working, enjoys time at school, and feels *safe* in the community. No mention of safety appears in Montessori's definition of normalization, but we cannot expect children to find joy in work and in their schools if they do not feel physically or psychologically safe (Heidelburg et al., 2022). Canzoneri-Golden and King (2020) gave multiple examples of Black students in particular who were reprimanded or responded to differently than were their White peers. This often led to confusion on the part of students, and inequities in the ways teachers responded to and interpreted behavior. We cannot expect children to feel physically or psychologically safe when they are reprimanded and treated differently than their peers are due to race. Heidelburg et al. (2022) found that racial discipline disproportionality is a common experience for Black students, and that schools must analyze their systems, policies, and practices to ensure psychologically safe environments and avoid perpetuating the oppression of BIPOC, specifically Black, students. Because U.S. systems of whiteness create an inequitable environment for BIPOC community members, a critical Montessori educator must actively pay attention to how they interact with, interpret the behavior of, and respond to behaviors from students. These considerations surely affect the children's ability to normalize, as racism will affect the way they function in the classroom, at school in general, or outside of school. Additionally, with the interpretation of normalization including a feeling of safety, the path toward normalization is not only about the child's relationship with work, but also about the climate in the

like progress will function to maintain white dominance. BlackCrit is a theoretical framework that was born out of critical race theory to center anti-Blackness (Dumas & Ross, 2016). Bell's (1993) work addressed the ongoing oppression specifically directed toward Black individuals. He writes, "Modern discrimination is…not practiced indiscriminately…Black people, then, are caught in a double bind…even when nonracist practices might bring a benefit, whites may rely on discrimination against blacks as a unifying factor" (Bell, 1993).

[3] As anti-Blackness functions specifically to continue oppressing Black individuals despite the appearance of racial progress (Bell, 1993), it also means non-Black people of color can participate in systems of anti-Blackness. For example, non-Black people of color can benefit from the illusory racial progress in which White individuals benefit through interest convergence but Black individuals are diminished. Non-Black people of color can also perpetuate anti-Blackness, especially by internalizing beliefs and assumptions about Black individuals that are upheld by white supremacy (Lee et al., 2022). For example, when non-Black people of color who are immigrants are connected to anti-Black perspectives, they can internalize racism and exacerbate prejudices (Lee et al., 2022). Because the function of anti-Blackness is to oppress Black individuals, it can allow for non-Black individuals of color to progress or gain benefits to promote the illusion of racial progress, when in reality, it still serves to oppress Black individuals.

classroom and school. Banks and Maixner (2016) found that a broader, institutional approach is necessary when integrating social justice into Montessori schools, and the same approach applies when examining normalization.

The above example demonstrates how to ask critical racial questions about Montessori education. Someone not using critical race theory does not consider racial structures and how they appear in classrooms and schools. Additionally, the Montessori Method was developed internationally. Maria Montessori did not explicitly consider American racist structures or how racist structures affect BIPOC community members. Without a critical racial lens, Montessori theory is left to be, and often is, interpreted through a lens of whiteness, which serves as the "standard" in the United States (Bonilla-Silva, 2018). The Montessori Method does not center race, thus making color blindness the norm. Additionally, with a strong emphasis on individualized lessons and individual development, Montessori practice does not frequently examine systems and structures, whereas a critical racial lens does.

Montessori educators are doing critical racial work in the United States, and the Montessori Method takes a stance akin to the liberalism critiqued by critical race theory. Many Montessori teachers include art and books that represent their students. This is helpful to the students in the classroom, but it does not explicitly teach anti-racism. The example of normalization demonstrates how significantly a critical racial lens affects the interpretation of Montessori theory. Emphasizing counter-storytelling means the CMM must center the voices of BIPOC educators and students to counter dominant White narratives about how BIPOC students and educators experience and embody Montessori philosophy.

Redefining Curriculum, Instruction, and Assessment

The core assumption of CMM is that the Montessori Method must be practiced with a critical racial understanding and implementation of the Montessori Method, with an overarching framework of critical race theory, and employs the following theoretical elements: community cultural wealth (CCW) to support BIPOC Montessori students' and educators' racial identities, culturally sustaining pedagogy (CSP) to value student knowledge and their racial identities, and a specific emphasis on counter-storytelling.

When considering critical race theory in education, Ladson-Billings (1998) describes the relationship between the two by using five different examples: curriculum, instruction, assessment, school funding, and desegregation. The CMM addresses curriculum, instruction, and assessment. Critical race theory views curriculum as an artifact maintained to preserve white supremacy, maintaining that current instructional practices are race-neutral and assume Black students are deficient (Ladson-Billings, 1998). By using the CMM, educators can redefine what the curriculum is and looks like.

A Critical Racial Understanding and Implementation of the Montessori Method

A thorough understanding and implementation of the Montessori Method is crucial to the CMM. Lillard (2019) stresses the importance of examining authentic Montessori practices to ensure measurable standards are used to compare schools and practices. Maria Montessori conceptualized the method as an interconnected system between the environment, the adult, and the child (Lillard, 2019). Below, I describe four elements I identify as essential for authentic Montessori practice: (a) Montessori materials, (b) an understanding of child development, (c) observation as a learning tool, and (d) respect for and relationships with children. These four elements reflect this interconnected system between environment, adult, and child. Montessori materials reflect the environment, understanding of child development reflects what the adult must consider and know, and observation as a learning tool reflects how adults identify children's interests and abilities. Respect for and relationships with children are both woven in through the care taken to create a child-centered environment, the effort adults make to understand and follow child development, and how adults use their observations to follow children's interests and abilities.

Montessori Materials

The Montessori materials serve as the curriculum. Lillard's (2011) study described the various materials in Montessori classrooms that were most impactful for children's development and academic growth when used appropriately. Among the many Montessori training organizations around the world, a few stand out as major authorities on Montessori education. One such organization is the Association Montessori International (AMI), whose training includes the list of materials from Lillard's (2011) previous research.

Acquiring and maintaining a complete set of Montessori materials depends on a school's budget and resources. The materials are as essential to the curriculum

as textbooks, worksheets, and paper are in a conventional school. There are so few Montessori material-making companies that they have monopolies on the Montessori materials, as only some companies are approved by organizations such as AMI. If a school wants AMI-approved materials, they must purchase them from the required company or build the materials themselves, an unrealistic task for public school teachers often left to their own devices to prepare and plan for classrooms (Walker, 2019). Additionally, materials such as three-part cards, cultural lessons, and historical timelines often center European perspectives. To use a CMM lens to prepare the classroom environment, educators could make their own materials or order from companies that center non-European perspectives, material-making companies could use alternate perspectives when making the materials, and Montessori trainers could encourage teachers in training to consider the biases that Eurocentric materials bring into the classroom.

Historically, BIPOC students have been denied access to wealth and are more subjected to inequity in education (Ladson-Billings, 2006). As such, even students in Montessori schools are subjected to this inequity, or, as Ladson-Billings calls it, "education debt" (2006). Education debt is comprised of historical debt (historical inequities in BIPOC access to public education), economic debt (funding disparities between schools serving predominantly White students and BIPOC students), sociopolitical debt (exclusion of BIPOC community members from the legislative process), and moral debt (the identification of BIPOC community members as threats to society) (Ladson-Billings, 2006). There is yet to be any research demonstrating that public Montessori schools are subject to less education debt than public conventional schools.

Understanding Child Development

The Montessori Method requires the adult to have a thorough knowledge of child development, to create spaces (tangible and intangible) for children to develop naturally. Montessori teachers use their knowledge of child development to determine where children are in their development (academic, physical, social, etc.) and which content they are ready for.

Child development is strongly connected to Montessori materials. Montessori teachers use their knowledge of child development to create individualized learning plans for students. Educators consider children's developmental readiness to know how and when to introduce particular lessons. Interpreting child development through the CMM means expanding the view of a child's life experience and asking questions directly related to their racialized experience in society: *How does the world view and racialize that child? How does racism affect that child's family? How does that then affect that child's pace of development?* In addition to academic, physical, and social development, children are developing personalities and identities. *How does a child's racial identity affect the development of their personality and identity?* These are a few examples of questions to ask when using the CMM.

Structurally, whiteness also plays a role in how public Montessori educators interpret their child development training. Whiteness is used to set educational goals and objectives (Mahfouz & Anthony-Stevens, 2020). Assessments set by school districts prioritize particular aspects of child development, such as social and emotional learning (SEL). Many SEL objectives center whiteness and hold a deficit narrative of BIPOC youth (Mahfouz & Anthony-Stevens, 2020). When districts and states set SEL objectives, educators must then interpret their training through the funnel of predetermined goals that do not include a critical awareness of BIPOC students' experiences and identities. Psychologists have found strong ethnic and racial identity are related to emotional well-being, so whiteness and structural racism negate the benefits of a strong ethnic and racial identity for BIPOC students (Jagers et al., 2018; Mahfouz & Anthony-Stevens, 2020). Current research about SEL calls for an awareness of whiteness, and an integration of culturally responsive teaching in setting and assessing SEL standards (Jagers et al., 2018; Mahfouz & Anthony-Stevens, 2020). The data on SEL can be extended to child development. Critical race theory demands an awareness of whiteness and structural racism, and how they impact the ways Montessori educators interpret and assess child development.

Observation as a Learning Tool

The third aspect, observation as a learning tool, can be used in any setting. Montessori educators must observe children, in an attempt to understand their personalities, interests, and to see what they can and will do when given an appropriate amount of freedom. Montessori training touts observation as an objective tool. However, lived experiences affect one's ontology, or perceptions on reality or being. Researchers found that what teachers notice is shaped by racist systems in the United States (Louie et al., 2021). A math teacher who organizes work around the racial achievement gap

in the effort to close it frames Black, Indigenous, and Latino students as lacking, and sets White students' achievements as the standard (Louie et al., 2021). National and local standards and assessments have structural impacts on what teachers notice (Louie et al., 2021). Because lived experiences shape how people understand and view the world, objective observation is impossible (Crenshaw, 2011). The observer must also be aware of how their lived experiences affect what they observe and how they interpret their observations. What one educator sees as a problem or challenge, another educator might see as a strength or an adaptive behavior. Montessori teachers should always incorporate critical self-reflection into their observation practices to help reveal and address racial or other forms of biases in their observations.

Respect for and Relationships with Children

The final authentic Montessori practice is respect for and relationships with children. This can look like not interrupting their work, following their interests, and being aware of the power dynamic between adult and child and mitigating that while also establishing appropriate limits. Maria Montessori's phrase "the forgotten citizen" referred to the way children's abilities are often discounted by adults, and the fact that they too have opinions, relationships, voices, and capabilities (Montessori, 1949/2007). Rather than dismissing children, talking about them as though they are not present when they are, and underestimating their abilities, respecting children means acknowledging their full humanity, addressing problems with them, and giving them the freedom to demonstrate their strengths. The Montessori educator's role is to connect with a child by observing their interests and engaging them to connect to the curriculum. Understanding the many ways they demonstrate their strengths is an essential part of respecting and forming relationships with children.

Using Community Cultural Wealth to Support BIPOC Educators' and Students' Lived Experiences

Another element of the CMM is use of CCW to support BIPOC Montessori students' and educators' racialized real-life experiences. In Montessori philosophy, the term "the prepared adult" refers to the professional, scientific, and spiritual preparation required of the adult before working with children (Bettmann, 2013). Professional preparation refers to characteristics generally required of teachers, such as communication, attendance and punctuality, and flexibility (Bettmann, 2013). Scientific preparation refers to knowledge of child development, setup of an appropriate Montessori space, and how to practice observation (Bettmann, 2013). Spiritual preparation refers to personality characteristics such as empathy and sensitivity, but also includes understanding that children have something to teach adults (Bettmann, 2013). The role of the adult is to support children and respond to mistakes with humility and flexibility, and refrain from giving unnecessary help (Bettmann, 2013). Being a prepared adult includes having an understanding of one's personal identity and strengths, and being able to notice children's strengths and abilities that are not acknowledged by dominant White culture (Louie et al., 2021; Yosso, 2005). Yosso's (2005) CCW framework emphasizes how and why valuing lived experiences is a crucial element of the CMM, and how to use CCW to center BIPOC students. CCW brings to light BIPOC communities' cultural wealth and resists dominant White narratives of what is considered valuable knowledge (Yosso, 2005). It is an active way to resist power dynamics that disempower BIPOC communities.

Yosso's (2005) CCW framework counteracts deficit thinking in U.S. schools and interrupts the concept of the White middle class being the standard against which other individuals and communities are judged. Yosso (2005) highlights race and its role in schooling, as school policies often view racial differences as "cultural differences'' and interpret culture in various ways. Yosso (2005) builds off of Bourdieu's work to describe a term called "cultural wealth." Cultural wealth, or capital, "refers to an accumulation of cultural knowledge, skills and abilities possessed and inherited by privileged groups in society...The dominant groups within society are able to maintain power [by using] these forms of capital for social mobility" (Yosso, 2005, p. 76). By limiting what is considered valuable, such as particular knowledge or skills, dominant (White) groups limit BIPOC community members' access to specific forms of knowledge or capital (Yosso & Burciaga, 2016). Thus, using a CCW lens not only empowers BIPOC community members but also disrupts conventional ways of interpreting knowledge. By using a critical racial framework, thus acknowledging that cultural wealth exists, BIPOC communities' cultures, strengths, and skills are empowered rather than discouraged or devalued. Below, I describe how critical Montessori educators can use the six forms of CCW to support BIPOC students and educators. I conclude

with a seventh form of capital: spiritual capital, which is specifically related to Black families' cultural wealth (Iruka et al., 2024).

Aspirational Capital

Students and educators with aspirational capital maintain a sense of hope and possibility despite the systems that oppress them (Yosso, 2005). Being aware of aspirational capital means being aware also of systemic barriers and one's place in them. A BIPOC educator who is aware of their aspirational capital might face hostile racial climates in the school but still maintain hope for their work with the students. For example, although the Chicana/o community has low educational outcomes as compared to other groups in the United States, its community members maintain a sense of high aspirations and possibility for their children (Yosso, 2005).

Linguistic Capital

Linguistic capital refers not only to the skills of speaking another language entirely, but also to speaking in more than one style (Yosso, 2005). BIPOC students who possess linguistic capital have multiple communication and language skills, and use these skills in their daily lives, such as multilingual youth who often translate for their parents (Yosso, 2005). Acknowledging linguistic capital means encouraging BIPOC Montessori educators possessing linguistic capital to use it in varying ways, using sources other than books or readings to teach content. Linguistic capital also means having intangible social skills such as cross-cultural awareness (Yosso, 2005). An educator could use this cross-cultural awareness and social skills to inform how they assess and teach social skills (Grace and Courtesy lessons in the Montessori community). For example, a student's culture may give them a host of skills, such as how to tell stories with attention to detail or specific focus on volume and rhythm, or prepared them to use various language styles to communicate with various audiences (Yosso, 2005). To address social skills, a teacher could give a Grace and Courtesy lesson about different ways people in various cultures greet one another—some with handshakes, others with a nod, and still others with a wave or other form of communication. In the Montessori Elementary classroom, students often write plays, so a Montessori educator valuing linguistic capital might encourage BIPOC students to incorporate their linguistic abilities and differences into a class play. By using CCW to inform how to interpret and practice Montessori education, educators can both value and actively support BIPOC educators' and students' forms of linguistic knowledge.

Familial Capital

Familial capital encompasses the cultural knowledge nurtured among families and communities (Yosso, 2005). An educator who knows about or possesses familial capital understands a student's home life affects how that student connects with others. Rather than face a challenge alone, a student with familial capital might be more likely to engage others to take on problems with them and collaborate to find solutions. Valuing familial capital also means extending one's understanding of family to a wider community. Delgado Bernal (2001) writes about pedagogies of the home, an example of familial capital in which students do specific kinds of learning in their homes and communities. In a primary Montessori classroom environment, where students ages 3 through 6 engage primarily in individual work, possessing or being aware of familial capital can help educators understand why some children may be drawn to others and spend less time working independently. They can support partner or group work while also offering independent lessons and work time, rather than trying to disrupt the student's tendencies or desires. Many Montessori schools do student home visits, especially for younger grades. A critical Montessori educator could interpret what they see and learn during a home visit as a set of assets a student and their family possess, using the home visit to acknowledge the student's lived experience and understand that they are bringing from home into the classroom their personal values, such as strong dedication to community (Delgado Bernal, 2001).

Social Capital

Social capital expands on familial capital, referring to social networks and community resources. Social capital reflects the BIPOC educator's lived experience more so than the BIPOC student's lived experience. An educator familiar with social capital knows students have communities and networks outside the school and can encourage students to utilize these networks. For example, community-based networks can support individuals in attaining legal support, health care, and even further education (Yosso, 2005). A school utilizing the CMM as a lens for practice might invite such community-based networks to speak at or host events, or provide outreach to families. BIPOC Montessori educators with social capital can also use their networks

to create opportunities for students, simultaneously modeling the benefits of social capital.

Navigational Capital

Navigational capital is the set of skills acquired while navigating through systems and social institutions that do not center BIPOC community members (Yosso, 2005). Educators with navigational capital can identify it in their students as knowledge, and even build on it to help students navigate schools and other systems such as the job market. An educator could support navigational capital by making students aware of the skills necessary to maneuver unsupportive or hostile social institutions. In the Montessori primary grades, this could be through a Grace and Courtesy (social skills) lesson about how to stand up for oneself or one another. In the Montessori Elementary and Middle grades, raising awareness around navigational capital could take place through true stories and critical conversations. I have seen BIPOC Montessori educators use their navigational capital in their jobs at school. A BIPOC Montessori educator possessing navigational capital is empowered to participate in the Montessori community while acknowledging how whiteness perpetuates hostile racial climates in schools. A Montessori school using the CMM could have programs or connections to community resources, or family information sessions that empower BIPOC students and families to navigate racist systems that serve to exclude them from certain opportunities. Resilience is recognized as a set of resources and cultural strategies to support individuals, and schools can support resilience in their communities with stable, supportive systems and networks, such as community-based organizations (Yosso, 2005).

Resistant Capital

Resistant capital is students' or teachers' knowledge and skills that others often interpret as oppositional behavior. An educator might demonstrate resistant capital by upholding various forms of cultural wealth or supporting BIPOC students' self-reliance and self-value in the racist, patriarchal structures they face (Yosso, 2005). In an elementary Montessori setting, where teachers share stories to help children know how to function in the world, an educator could create lessons around children's resistant capital, teaching to consciously talk about, identify, or defend one's cultural capital. A critical Montessori educator could share true stories about how different communities throughout history have rebelled against oppression, or study current events and how to use resistant capital to persist under adversity. A school that uses the CMM could support educators to integrate into their teaching critical racial conversations about identity and how to navigate this racist society, rather than teach anti-racist work as an "add-on" to the Montessori curriculum. This could mean giving educators specific planning time to research ways to resist oppression and how to share that in classrooms. A school that uses the CMM acknowledges that student behaviors deemed disruptive may not be problem behaviors but, instead, responses to inequality they are experiencing in and outside of the classroom; resistance can include different forms of intentional, oppositional behavior (Yosso, 2005).

Spiritual Capital

Spiritual capital refers to spirituality and religion, and the potential support they provide for BIPOC students and families (Iruka et al., 2024; Park et al., 2020); although not all BIPOC communities are religious or spiritual, Black adults in particular reported religion as an important part of their lives (Pew Research Center, 2016). Spirituality is a broad enough term to encompass both structured religious practices and institutions and less structured connections to a higher power (Iruka et al., 2024). Churches and religious communities have historically played a role in community resource-sharing as well as activism (Iruka et al., 2024). Spiritual capital, thus, includes the connections, skills, and resources that BIPOC community members have access to through their spiritual communities (Park et al., 2020). Spiritual capital intersects with most, if not all, of the above forms of capital, through supporting social and linguistic skills in spiritual practices to leaning on spiritual communities to use resistant capital (Park et al., 2020). Spiritual communities often support students' education through afterschool programs and tutoring, as well as providing additional education (language or religious instruction) (Park et al., 2020). Recognizing spiritual capital does not require Montessori educators to include spiritual or religious practices in their classrooms, but the awareness that students and families may have access to a strong spiritual community only adds to the assets-based perspective the CCW framework provides.

Being a prepared adult ready to work with children means understanding one's lived experience as a strength. An educator who can understand their own strengths and lived experiences can more easily observe those

strengths in children. Once a Montessori educator internalizes cultural competence and relevance, their role as a facilitator of learning strengthens in the student-centered Montessori environment (Brunold-Conesa, 2019). Educators must be aware of the multiple facets of their identities and experiences to support their students' varying capitals (Brown & Steele, 2015; Durden et al., 2015). Learning about cultural patterns of learning and behavior can help educators disrupt their constructions of racial discourse and introduce them to a different lens for framing student (and their own) strengths and abilities in the form of CCW (Nash & Miller, 2015). The forms of capital above often remain unacknowledged by dominant White culture, and even frowned upon. Educators who are cognizant of CCW can build on their own strengths and recognize the knowledge students and their families already possess, disrupting dominant White ideas of knowledge, centering their own lived experiences, and continuing the Montessori tradition of a strengths-based pedagogy.

Using Culturally Sustaining and Relevant Pedagogy to Value Educators' and Students' Community Cultural Wealth

This model also hinges on the belief that children have something to teach us, and that using culturally sustaining pedagogy (CSP) to inform Montessori practice provides the space to value student and educator racial identities and uplift student knowledge. This element is directly informed by Paris's (2012) culturally sustaining pedagogy (CSP) and centers more tangible elements in teaching such as curriculum. CSP focuses specifically on supporting racial and ethnic identity development; these are aspects left out of universal Montessori training. CSP provides a way for teachers to help children connect (and remain connected) with their identities and feel confident in who they are (Paris, 2012). CSP is the ideal pedagogy for sustaining student knowledge, but realistically it is incredibly challenging for educators to include all students' languages, backgrounds, and experiences as the groundwork for their teaching. CSP is an inherently anti-racist framework due to its counter-hegemonic approach (Paris, 2021). For the purposes of this theoretical element, I will focus on culturally relevant pedagogy (CRP), the predecessor to CSP.

CRP in Montessori Education

CRP emphasizes representation of student identities in curriculum and teaching methods that center students' experiences. It explicitly combats deficit thinking, instead acknowledging institutional racism, racialization, language discrimination, and skin color privilege (Hammond, 2015). The cost of not using CRP is high: students who are unable to connect with course content will not learn it, and perhaps experience a sense of frustration and inability to fully process content (Hammond, 2015). Hammond's work details the implications of considering culturally responsive teaching and its effects on the brain and learning (2015). Hammond describes five principles, or "brain rules," to understand the role of culture in learning (2015). The first is that the brain seeks to minimize threats and maximize opportunities to connect with others (Hammond, 2015). Students need to feel safe and happy to learn (Hammond, 2015). When students face microaggressions, their amygdala stays on alert, trying to detect other microaggressions and leading to "the unconscious safety-threat detection system" to engage, detracting from a focus on school content (Hammond, 2015, p. 47). The second principle is that positive relationships help the amygdala stay calm so other parts of the brain (the prefrontal cortex) can focus on higher order learning and thinking (Hammond, 2015). Third, culture guides how one processes information (Hammond, 2015). Learning is most effective if processed using common cultural learning aids specific to a student (Hammond, 2015). Fourth, attention drives learning. Culturally relevant methods (oral traditions, music, call and response) grab the learner's attention and actively engage them in the learning process (Hammond, 2015).

Another key principle is that new information must be paired with students' existing knowledge to make sense of new content (Hammond, 2015). Finally, the brain physically grows through challenges (Hammond, 2015). Creating independent learners while challenging students involves introducing them to relevant work involving problem-solving (Hammond, 2015). Without incorporating students' cultures and experiences into teaching, students' cognitive processing is inhibited (Hammond, 2015), thus limiting efficacy of the Montessori Method.

Montessori literature shows that public Montessori schools may be limited by the lack of diversity of teaching staff as well as cultural responsiveness of teacher education (D'Cruz, 2022; Debs & Brown, 2017). The Montessori Method naturally lends itself well to elements of CRP, such as culturally relevant art and true cultural stories, and the nature of a student-centered environment.

Despite the potential to smoothly combine Montessori education and CRP, there are no explicit teachings that all Montessori teachers learn to do so (D'Cruz, 2022). One way to support student identity development is through schools that move toward CRP and CSP (D'Cruz, 2022). Montessori training should also support and explicitly include CRP and CSP. Realistically implementing CSP might be challenging, so research is in process on how to do so (Doucet, 2019). Fostering cultural competency, supporting teachers' inner reflection and work, and identifying ways to sustain students' cultures and knowledge is an essential part of student-centered Montessori education (D'Cruz, 2022). Doucet (2019) outlines six ways to implement CSP in schools, including: increasing diversity knowledge; addressing diversity in its full capacity; promoting global perspectives; combating prejudice and discrimination; building classrooms as a community of trust; and involving families and communities in education.

As the term "diversity" implies a White-centered perspective in which non-White individuals are considered the "other," Doucet (2019) uses it to refer to a lack of knowledge of institutional racism and how it affects BIPOC students. The open-endedness of materials such as geography folders and cultural stories lends to increasing diversity knowledge through the curriculum in addition to acknowledging the role of intersectionality, thus addressing diversity in its full capacity and promoting global perspectives. It is the work of Montessori educators and teacher trainers to use such open-ended materials to intentionally address racism in their work with students.

Whereas the first three of Doucet's (2019) six concepts relate to increasing knowledge for and supporting BIPOC students, the final three pertain to the community an educator builds. Doucet's (2019) commitment for culturally sustaining practices expands the idea of representation. Students must be exposed not only to representation of themselves in books and art, but also must know how prejudice and discrimination operate, and how to recognize and discuss these issues. Doucet (2019) gives a nod to observation, by which the observer writes a description of what they see, as helpful practice for educators to familiarize themselves with their classroom dynamic. However, Doucet (2019) does not acknowledge the impossibility of objectivity in standard observation. A critical Montessori educator could review their observation notes and identify any biased or discriminatory comments, or use their notes to address harmful classroom dynamics and to actively support students' racial and ethnic identities. Building a classroom community of trust mimics social cohesion and relationship-building in Montessori philosophy (Doucet, 2019). Doucet suggests self-reflection as a way to build a warm classroom climate; a critical Montessori educator needs time to self-reflect and note what changes or learning might be necessary to support anti-racist teaching and a critical Montessori classroom that explicitly uplifts BIPOC students. Connecting with families also contributes to a strong, culturally sustaining classroom. Utilizing families' skills and knowledge to involve them in the school contributes to a culturally sustaining approach to schooling (Doucet, 2019). In a Montessori setting, educators might ask family members to help in repairing broken materials, connecting educators to community resources and knowledge, or giving their input as to which Grace and Courtesy lessons they deem necessary for their children.

The six commitments serve as examples of CSP and how the Montessori curriculum *must* make way for CSP in schools to counteract dominant, White-centered, deficit lenses and instead promote anti-racist teaching and school environments that support development of students' racial and ethnic identities. The role of CSP in the Critical Montessori Model (CMM) is to invite educators to prioritize culturally sustaining ways of interpreting and practicing the Montessori Method.

Using Counter-storytelling to Support BIPOCs' Lived Experiences

The final theory is counter-storytelling to support BIPOC students' and educators' lived experiences. Doucet suggests storytelling to help build trusting classroom communities (2019). Critical race theory takes storytelling a step further, emphasizing counter-stories, "stories of those people whose experiences are not often told…[tools] for exposing, analyzing, and challenging the…stories of racial privilege. Counter-stories can shatter complacency, challenge the dominant discourse on race, and further the struggle for racial reform" (Solórzano & Yosso, 2002). Solórzano and Yosso (2002) proposed gathering various forms of counter-stories: personal stories describing individual experiences with forms of racism in relation to larger systems (such as the education system), other people's stories revealing racism in larger systems, and composite stories drawing from various sources to convey racialized experiences of BIPOC community members.

Counter-stories can build community among BIPOC community members, challenge established dominant (White) systems accepted as the norm, show that there are a multitude of lived experiences, and illuminate reality by combining elements of existing and new stories (Solórzano & Yosso, 2002). A critical Montessori school that emphasizes counter-storytelling can value experiences and stories of its BIPOC educators to reveal how racism exists and perpetuates itself in a school, striving to disrupt such racist practices and systems. Counter-stories build community among those most marginalized in society, challenge dominant narratives, show the realities of marginalized individuals, and demonstrate that these are not isolated incidents or experiences (Solórzano & Yosso, 2002). Self-reflection is a part of implementing CSP. By providing time and space for self-reflection, a school could invite BIPOC educators to write or narrate their counter-stories. If, for example, a school were to invite BIPOC educators to share counter-stories, those stories might illuminate their commonalities, such as hostile racial climates or the additional, unpaid emotional labor often done by BIPOC educators (Kohli et al., 2019). With this information, a school would be better equipped to understand how to address such challenges that arise and are perpetuated by racist practices and systems. By providing a platform for such stories, schools can open up dialogue and begin to confront racist structures in their communities. The Montessori community would do well to create space for BIPOC Montessori educators' counter-stories, noting how and where racism appears in and disrupts schools and the wider community.

Counter-storytelling offers opportunities to center and understand BIPOC experiences in education (Solórzano & Yosso, 2002). Using counter-stories places importance on voices that historically have been silenced and oppressed—in this case, BIPOC educators and students (Solórzano & Yosso, 2002). Gathering and sharing counter-stories that resist dominant (White) narratives thus reveal systems of whiteness and racism that plague the education system (Solórzano & Yosso, 2002).

Future Directions for the Critical Montessori Model

The CMM has strong implications for scholars, training centers, and Montessori practitioners. Centering the BIPOC community's lived experiences redefines what is considered knowledge as well as which knowledge is considered valuable. The CMM's foundation of critical race theory requires schools, training centers, and other institutions to confront their roles in perpetuating white supremacy through racist systems and examine how they might disrupt those systems. The CMM does not provide explicit answers but instead offers a lens through which to view and understand Montessori education in a way that specifically supports BIPOC community members and questions white supremacy, rather than giving into whiteness as the norm. The CMM's focus on community cultural wealth (CCW) encourages Montessori scholars and educators to broaden the already assets-based Method to include the various ways BIPOC students and families show their strengths and knowledge. This will not only open up the idea of what knowledge is but also challenge the dominant (White) narrative on knowledge and who defines it. Highlighting the strengths, knowledge, and lived experiences of BIPOC members of the Montessori community while simultaneously acknowledging the racist systems in which Montessori education is practiced in the United States will challenge schools and educators to examine how they practice the Method, and posit researchers to examine the philosophy and their research through a critical lens.

One limitation of the CMM lies in its newness. As it is implemented in various settings, it may well evolve and grow, as other theoretical models have. Another limitation is that, due to state and district requirements, public schools may struggle to fully use the CMM to guide their communities, as they often must follow specific guidance around assessment, professional development, curricula, and family engagement.

Further papers and research could use CMM as the lens through which to interrogate various features and concepts in the Montessori philosophy and Method (for example, the concepts of normalization and deviation, the lack of classroom management training that leads to racial discipline disproportionality, and the challenges of bias appearing in such an individualized method). I recommend the research community use the CMM to guide their research, and to calibrate critical Montessori research that aims to center the BIPOC community. Further studies could use the CMM to examine how Montessori training centers prepare and train future teachers. Future research could also examine how a school might use the CMM to analyze school policies, or guide school practices and decision-making processes. Any individual or organization can use the CMM to interpret the Montessori Method and philosophy by

uplifting the BIPOC community's lived experiences, and examining how racist structures and systems affect how Montessori education is interpreted in the United States.

I would be remiss if I did not highlight the inequity in the Montessori research community, as the overwhelming majority of Montessori research studies are conducted by White scholars. Although their work is crucial and provides a strong foundation for future Montessori research, I call for more BIPOC Montessori researchers' voices to be heard. The CMM explicitly centers the BIPOC experience. It highlights practices of already-successful BIPOC educators using their strengths to embody Montessori education. Without these voices, Montessori educators do a great disservice to their communities, but by highlighting BIPOC scholars' works, they can embody the belief that BIPOC's voices, lived experiences, and knowledge are crucial parts of the Montessori research community.

Author Information

Genevieve D'Cruz is an independent researcher. She can be reached at genevievedcruz@gmail.com. https://orcid.org/0000-0002-6258-3411

References

Archer, D. N. (2022). How racism persists in its power. *Michigan Law Review, 120*(6), 957–969. https://doi.org/10.36644/mlr.120.6.classic

Banks, K. H. & Maixner, R. A. (2016). Social justice education in an urban charter Montessori school. *Journal of Montessori Research, (2)*2, 1–14. https://doi.org/10.17161/jomr.v2i2.5066

Bell, D. (1993). *Face at the bottom of the well: The permanence of racism*. Basic Books.

Bettmann, J. (2014). *The prepared adult* [Lecture, International Montessori Training Institute, Atlanta].

Bonilla-Silva, E. (2018). *Racism without racists: Color-blind racism and the persistence of racial inequality in America.* Rowman & Littlefield.

Brown, K. E., & Steele, A. S. L. (2015). Racial discipline disproportionality in Montessori and traditional public schools: a comparative study using the relative rate index. *Journal of Montessori Research, 1*(1), 1–27. https://doi.org/10.17161/jomr.v1i1.4941

Brunold-Conesa, C. (2019). *Culturally responsive pedagogy: An intersection with Montessori education.* https://www.nais.org/magazine/independent-teacher/spring-2019/culturally-responsive-pe

Canzoneri-Golden, L., & King, J. (2020). *An examination of culturally relevant pedagogy and antiracist curriculum in a Montessori setting*. [Doctoral dissertation, Lynn University]. Graduate Student Dissertations, Theses, Capstones, and Portfolios. https://spiral.lynn.edu/cgi/viewcontent.cgi?article=1360&context=etds

Canzoneri-Golden, L., & King, J. (2023). Montessori education and critical race theory in the United States. In A. K. Murray, E. T. Ahlquist, M. K. McKenna, & N, Debs (Eds.), *The Bloomsbury handbook of Montessori education* (pp. 503–512). Bloomsbury.

Crenshaw, K. (2011). Twenty years of critical race theory: Looking back to move forward. *Connecticut Law Review, 43*(5), 1253-1353.

D'Cruz, G. (2022). Culturally sustaining practices in public Montessori schools: A review of the literature. *Journal of Unschooling and Alternative Learning, 16*(31). https://jual.nipissingu.ca/wp-content/uploads/sites/25/2022/02/v14292.pdf

Debs, M. C., de Brouwer, J., Murray, A. K., Lawrence, L., Tyne, M., & von der Wehl, C. (2022). Global diffusion of Montessori schools: A report from the global Montessori census. *Journal of Montessori Research, 8*(2), 1–15. https://doi.org/10.17161/jomr.v8i2.18675

Debs, M. (2019). *Diverse families, desirable schools: Public Montessori in the era of school choice*. Harvard Education Press.

Debs, M. C. (2016). Racial and economic diversity in U.S. public Montessori schools. *Journal of Montessori Research, 2*(2), https://doi.org/10.17161/jomr.v2i2.5848

Debs, M. C., & Brown, K. E. (2017). Students of color and public Montessori schools: a review of the literature. *Journal of Montessori Research, 3*(1), 1–15. https://doi.org/10.17161/jomr.v3i1.5859

Delgado Bernal, D. (2001). Learning and living pedagogies of the home: The mestiza consciousness of Chicana students. *Qualitative Studies in Education, 14*(5), 623–639. https://doi.org/10.1080/09518390110059838

Delgado, R., & Stefancic, J. (2007). Critical race theory and criminal justice. *Humanity & Society, 31*, 133–145. https://doi.org/10.1177/016059760703100201

Doucet, F. (2019). Culturally sustaining and humanizing practice in early childhood care and education. In

C. P. Brown, M. B. McMullen, & N. File (Eds.), *The Wiley handbook of early childhood care and education*, 149–171. John Wiley & Sons, Inc.

Dumas, M.J. & Ross, K.M. (2016). "Be Real Black for me": Imagining BlackCrit in education. *Urban Education, 51*(4), 415–442. https://doi.org/10.1177/0042085916628611

Durden, T. R., Escalante, E., & Blitch, K. (2015). Start with us! Culturally relevant pedagogy in the preschool classroom. *Early Childhood Education*, 43, 223–232. https://doi.org/10.1007/s10643-014-0651-8

Hammond, Z. (2015). *Culturally responsive teaching and the brain: Promoting authentic engagement and rigor among culturally and linguistically diverse students*. Corwin.

Harris, C. (1993). Whiteness as property. *Harvard Law Review*, *106*(8), 1707–1791. https://doi.org/10.2307/1341787

Heidelburg, K., Phelps, C., & Collins, T. A. (2022). Reconceptualizing school safety for Black students. *School Psychology International*, *43*(6). https://doi.org/10.1177/01430343221074708.

Iruka, I. U., Forte, A. B., Liu, S., Sims, J., & Curenton, S. M. (2024). Initial validation of the family cultural wealth survey: Relation with racial discrimination and well-being for Black families. *Adversity and Resilience Science*. https://doi.org/10.1007/s42844-024-00139-y

Jagers, R. J., Rivas-Drake, D., & Borowski, T. (2018). Equity & social and emotional learning: A cultural analysis [Special issue]. *Measuring SEL: Using Data to Inspire Practice*, 1–18. https://www.delawarepbs.org/wp-content/uploads/2020/07/Jagers-Rivas-Drake-Borowski-2018-Equity-_-Social-and-Emotional-Learning_A-Cultural-Analysis.pdf

Kohli, R., Lin, Y., Ha, N., Jose, A., & Shini, C. (2019). A way of being: Women of color educators and their ongoing commitments to critical consciousness. *Teaching and Teacher Education*, *82*, 24–32. https://doi.org/10.1016/j.tate.2019.03.005

Ladson-Billings, G. (1998). Just what is critical race theory and what's it doing in a nice field like education? *International Journal of Qualitative Studies in Education*, *11*(1), 7–24. https://doi.org/10.3102/0013189x035007003

Ladson-Billings, G. (2006). From the achievement gap to the education debt: Understanding achievement in U.S. schools. *Educational Researcher*, *35*(7), 3–12. https://doi.org/10.3102/0013189x035007003

Lee, H., Lei, Q., Su, G., & Zhang, S. (2022). Acknowledging anti-Blackness, overlooking anti-Asian racism: Missed developmental opportunities for Chinese American youth. *Journal of Research on Adolescence*, *32*(3), 1064–1082. https://doi.org/10.1080/095183998236863

Leonardo, Z. (2009). *Race, whiteness, and education*. Taylor & Francis.

Lillard, A. (2011). What belongs in a Montessori primary classroom?: Results from a survey of AMI and AMS teacher trainers. *Montessori Life*, *23*(3), 18–32. https://www.researchgate.net/profile/Angeline-Lillard/publication/290448065_What_Belongs_in_a_Montessori_Primary_Classroom/links/56994f1708ae6169e5517e46/What-Belongs-in-a-Montessori-Primary-Classroom.pdf

Lillard, A. (2019). Shunned and admired: Montessori, self-determination, and a case for radical school reform. *Educational Psychology Review*, *31*, 939–965. https://doi.org/10.1007/s10648-019-09483-3

Lillard, A. S., & Heise, M. J. (2016). Removing supplementary materials from Montessori classrooms changed child outcomes. *Journal of Montessori Research*, *2*(1). https://doi.org/10.17161/jomr.v2i1.5678

Lillard, A.S., Taggart, J., Yonas, D., & Batson-Seale, M. N. (2023). An alternative to "No Excuses": Considering Montessori as culturally responsive pedagogy. *Journal of Negro Education 92*(3), 301–324. https://muse.jhu.edu/article/934318

Littlecott, H. J., Moore, G. F., & Murphy, S. M. (2018). Student health and well-being in secondary schools: The role of support staff alongside teaching staff. *Pastoral Care in Education*, *36*(4), 297–312. https://doi.org/10.1080/02643944.2018.1528624

Louie, N., Adiredja, A. P., & Jessup, N. (2021). Teacher noticing from a sociopolitical perspective: the FAIR framework for anti-deficit noticing. *ZDM - Mathematics Education*, *53*, 95–107. https://doi.org/10.1007/s11858-021-01229-2

Mahfouz, J., & Anthony-Stevens, V. (2020). Why trouble SEL? The need for cultural relevance in SEL. *Possibilities and Problems in Trauma-Based and Social Emotional Learning Programs*, *2020*(43), 58–70. https://doi.org/10.58295/2375-3668.1354

Montessori, M. (2007). *Education and peace*. Montessori-Pierson. (Originally published 1949)

Murray, A. K., Daoust, C. J., & Chen, J. (2019). Developing instruments to measure Montessori instructional practices. *Journal of Montessori Research*, *5*(1), 50–74. https://doi.org/10.17161/jomr.v5i1.9797

Nash, K. T., & Miller, E. T. (2015). Reifying and resisting racism from early childhood to young adulthood. *Urban Rev*, *47*, 184–208. https://doi.org/10.1007/s11256-014-0314-5

National Center for Montessori in the Public Sector. (2022). *About Montessori*. https://www.public-montessori.org/montessori/

Okun, T. (2021). *White supremacy culture—Still here*. https://drive.google.com/file/d/1XR_7M_9qa64zZ00_JyFVTAjmjVU-uSz8/view

Omi, M., & Winant, H. (2014). *Racial formation in the United States*. Taylor & Francis.

Paris, D. (2012). Culturally sustaining pedagogy: a needed change in stance, terminology, and practice. *Educational Researcher*, *41*(3), 93–97. https://doi.org/10.3102/0013189X12441244

Paris, D. (2021). Culturally sustaining pedagogies and our futures. *The Educational Form*, *85*(4), 364–376. https://doi.org/10.1080/00131725.2021.1957634

Paris, D., & Alim, H. S. (2017). *Culturally sustaining pedagogies: Teaching and learning for justice in a changing world*. Teachers College Press. https://doi.org/10.3102/0013189x12441244

Park, J. J., Dizon, J. P. M., & Malcolm, M. (2020). Spiritual capital in communities of color: Religion and spirituality as sources of community cultural wealth. *The Urban Review*, *52*, 127–150. https://doi.org/10.1007/s11256-019-00515-4

Pew Research Center. (2016). Pew Research Center: Religious beliefs among Black Americans. Retrieved from the Pew Research Center. https://www.pewresearch.org/religion/2021/02/16/religious-beliefs-among-black-americans/

Solórzano, D. G., & Yosso, T. J. (2002). Critical race methodology: Counter-storytelling as an analytical framework for education research. *Qualitative Inquiry*, *8*(1), 23–44. https://doi.org/10.1177/107780040200800

Walker, T. (2019, August 26). Teacher spending on school supplies: A state-by-state breakdown. *NEA Today*. https://www.nea.org/nea-today/all-news-articles/teacher-spending-school-supplies-state-state-breakdown

Yosso, T. (2005). Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race Ethnicity and Education*, *8*(1), 69–91. https://doi.org/10.1080/1361332052000341006

Yosso, T., & Burciaga, R. (2016, June). *Reclaiming our histories, recovering community cultural wealth* [Research brief]. Center for Critical Race Studies at UCLA. https://www.academia.edu/download/48966245/TY___RB_CCW_Research_Brief_Final_Version.pdf

Zippia: The Career Expert. (2024). *Montessori teacher demographics and statistics in the US*. https://www.zippia.com/montessori-teacher-jobs/demographics/

Appendix 1
Commonly Used Acronyms and Theories

Acronym	Meaning and definition
BIPOC	**Black, Indigenous, and other people of color**: although referring to all people of color, this acronym purposefully leads with Black and Indigenous individuals to highlight the specific discrimination that Black and Indigenous people in the United States have historically faced and continue to face.
CMM	**Critical Montessori Model**: a theoretical model that provides a critical racial lens through which to view and interpret Montessori philosophy and practice
CRT	**Critical race theory**: a theoretical framework that centers BIPOC individuals and posits that racism is a normal and pervasive part of U.S. society
CRP/CSP	**Culturally responsive pedagogy/culturally sustaining pedagogy**: pedagogical methods that recognize students' cultural identities, reflect them in the classroom, and actively work to sustain and support their identities through the curriculum and classroom environment
CCW	**Community cultural wealth**: an assets-based framework for identifying BIPOC student and family strengths and the various cultural knowledge they possess

Beliefs about Autonomy Support and Control in the Classroom: An Examination of Montessori and Traditional U.S. Public School Teachers

Jennifer D. Moss, Emporia State University
Theodore J. Wheeler, Kansas State University

Keywords: *Montessori teachers, traditional teachers, self-determination theory, autonomy support, controlling teaching*

Abstract: Montessori education is characterized by autonomous learning, whereas traditional education is often depicted by high structure and fewer choice opportunities. This study examined differences in beliefs of Montessori and traditional teachers in regard to effectiveness, normality, and ease of autonomy-supportive and controlling teaching, as well as differences in motivating styles. We analyzed the U.S. subset from an international study examining self-described motivation styles and beliefs. Our secondary analysis revealed both groups felt autonomy-supportive teaching was easy and effective, and that they found controlling teaching also to be easy, but ineffective. Montessori teachers were more likely to believe autonomy-supportive teaching was normal, whereas traditional teachers believed controlling teaching was more normal. Both groups described their teaching style as autonomy-supportive, but traditional teachers more often rated controlling scenarios as similar to their own practices. These differences, supported by large effect sizes, demonstrate more potential for controlling behavior in traditional classrooms and suggest the possibility of a cultural difference between Montessori and traditional teachers.

Within the context of U.S. public schools, Montessori and traditional educators work in contrasting environments and teach students in markedly contrasting ways. Montessori teachers foster intrinsic motivation so students will be naturally inclined to seek out knowledge (American Montessori Society [AMS], n.d.). Montessori students learn in multi-age classrooms and work independently much of the day (Lillard, 2019). In contrast, traditional public school teachers are more likely to use whole-class instruction, have high levels of structure and performance expectations, and provide fewer opportunities for students to make choices (Lillard, 2019). A study of high school classrooms in traditional U.S. schools found that these students spent a majority of classroom time listening to lectures, watching videos, or engaging in a variety of other passive activities, including time when the teacher took attendance or managed technology, or while a student reported on the school's daily activities (Fisher, 2009). Observations from more than 2,500 classrooms in more than 1,000 traditional elementary schools demonstrated that students in first, third, and fifth grades spent more than 90% of their time in whole-group instruction or individual seatwork, with fifth graders receiving five times more instruction devoted to basic skills than to higher-order skills, such as critical thinking and reasoning (Pianta et al., 2007). These students experienced minimal collaborative work or small-group instruction.

In contrast, another study showed that Montessori middle school students reported more time spent in collaborative activities and individual projects, whereas traditionally educated students reported spending more time in teacher-directed activities and socializing with peers (Rathunde & Csikszentmihalyi, 2005). Montessori students also work with specially designed didactic materials intended to foster internalization of learning, whereas traditional students spend more time doing schoolwork on paper to create artifacts of their learning (Manner, 2007).

As Montessori and traditional teachers experience dissimilar types of educator preparation, any discussion of their perspectives on autonomy support and control in the classroom must consider their teacher training. Although it is beyond the scope of this paper to undertake a complete analysis of traditional and Montessori teacher training, key differences are worthy of note. One difference is the cohesiveness of the training teachers obtain. In traditional programs, teacher candidates progress through their collegiate courses with little connection between the course content and its future classroom applications (Nguyen, 2018). However, in Montessori training, future teachers master the course curriculum and content while simultaneously focusing on how it relates to a child's holistic development (Cossentino, 2009). In addition, Montessori training seeks to transform the adult student, too, replacing common behaviors, such as pride and anger, with virtues like humility and patience, while also fostering cooperation and joy among young students (Christensen, 2019).

The current study uses self-determination theory (SDT; Ryan & Deci, 2017) to examine motivational beliefs of traditional and Montessori public school teachers. Analysis was conducted of the U.S. subset from a previously published international study (Reeve et al., 2014) that examined self-described motivation styles and beliefs from teachers in eight cultures. The goal of the initial study was to investigate how teachers' motivating styles would be predicted by how effective, easy to implement, and normal autonomy-supportive and controlling teaching were believed to be. The initial study investigated these beliefs within the context of the eight cultures from which the samples were collected, based on national collectivism–individualism (Reeve et al., 2014).

The U.S. subset was collected from Montessori public schools and traditional public schools but was combined within an international context for analyses once the model for national collectivism–individualism was selected (Reeve, personal communication, May 2011). Because the two U.S. samples were collected from one nation, analyzing them separately with a national collectivism–individualism lens would have introduced a confound, so the sample was combined.

However, three developments warrant further research on this U.S. sample data set. First, scholars have recently identified ways Montessori education aligns with SDT (Basargekar & Lillard, 2023; Lillard, 2019) and have issued calls for additional empirical examinations of the relationship between Montessori education and SDT (Moss & Smuda, 2022). Second, research has been published regarding benefits to not only students but also teachers through autonomy-supportive teaching. According to Cheon et al. (2020), benefits to instructors include enhanced student-teacher relationships, better classroom engagement from students, and an increased sense of professional competence. Third, researchers are better understanding the detriments to students that arise from controlling teaching, to include student amotivation, anger, anxiety, and oppositional defiant behaviors (Assor et al., 2005; Haerens et al., 2015).

SDT (Ryan & Deci, 2017) posits that humans have three basic psychological needs: autonomy, relatedness, and competence. Autonomy refers to the human need for volition. Relatedness points to the need for a sense of belonging and connectedness. Competence describes the need for successful interactions with one's environment. Considerable works demonstrate the benefits of self-determination in the classroom, especially in that autonomy-supportive teaching satisfies students' basic psychological needs (e.g., Cheon et al., 2014; Katz & Shahar, 2015; Reeve et al., 2004).

A teacher who supports student autonomy will work to understand student perspectives, encourage positive emotions and behaviors, and support student self-regulation. A teacher who uses controlling methods to manage a classroom will likely consider only their own perspective, undermine student motivation with "should" or "must" statements, and pressure students to behave in certain ways (Reeve, 2009, 2016).

According to self-determination theorists Deci et al. (1982) and Reeve (2009), teachers might adopt controlling behaviors for a number of reasons, including pressure from the demands of standardized testing, or the beliefs that control is valued culturally or that extrinsic rewards increase student performance. Although these methods may work in the short term, controlling teacher behaviors ultimately undermine intrinsic motivation (Ames, 1992; Basten et al., 2014; Reeve, 2016), foster ill-being and negative affect (Assor et al., 2005; Bartholomew et al., 2011; Reeve, 2016; Soenens et al., 2012), and thwart needs for autonomy, relatedness, and competence (Bartholomew et al., 2011; Hein et al., 2015; Reeve, 2016).

As previously mentioned, there has been an increase in literature describing the similar perspectives held by Montessori education and SDT. In 2019, Lillard identified the similarities by pointing out that students in a Montessori classroom freely choose between work in the classroom and opportunities to engage in meaningful work with peers. She also points out that a Montessori classroom fosters students' intrinsic motivation, which encourages the self-satisfaction of a job well done, rather than addressing their behavior with extrinsic punishments and rewards.

Basargekar and Lillard (2023) continued this theme by identifying specific ways Montessori classrooms meet the basic psychological needs presented by SDT. Autonomy is promoted by offering choices, but not every work is available as a choice in the classroom. Montessori students are free to choose activities they have previously received lessons on (Basargekar & Lillard, 2023), dovetailing seamlessly with SDT's concept of autonomy within a structure (Jang et al., 2006). Teachers in the Montessori environment support students' sense of competence through structured choices, ensuring that students actually engage in work in which they can be successful. The need for relatedness is addressed by removing judgment from the classroom. Montessori teachers do not give grades and, when students misbehave, teachers are trained to view the transgression as a fault of the environment, not the child (Basargekar & Lillard, 2023).

Along with a growing trend of research articles addressing Montessori education in general (Lillard, 2019), several published papers and student dissertations or theses discuss the similarities between Montessori education and SDT (Casquejo Johnston, 2016; Krugerud, 2015; Wells, 2014). A systematic review found 42 papers that referenced both Montessori education and SDT, including 23 unpublished student papers and 19 published articles. Of those papers, only 13 took an investigative approach to both theories, whereas the remaining papers merely referenced one or both theories, and of those, only three were published articles (Moss & Smuda, 2022). Although many authors acknowledge the alignment between SDT and Montessori education, there has been scant empirical investigation involving both theories. This lack of empirical work motivated us to return to our existing data set.

Given the differences noted between Montessori and traditional education, along with the differences between autonomy-supportive teaching and controlling teaching more generally, we began an investigation with this secondary data set. In the initial analyses, it was apparent that traditional and Montessori teachers endorsed autonomy at similar levels (Reeve et al., 2014). As we began our secondary analysis, we believed that in an international context of the initial investigation, these U.S. teachers may have appeared to have more similarities than differences. However, examining them side by side would provide a more fine-grained analysis and highlight areas of divergence.

An additional and important rationale for the value of this study is that very few studies compare Montessori and traditional teachers, whether their environment is public or private. Rathunde and Csikszentmihalyi's influential study (2005) focuses on middle school students in both environments. Lopata et al. (2005)

examined academic achievement of students in Montessori and traditional programs. Studies examining student-level social and cognitive skills, academic outcomes, levels of activity, and self-esteem are readily available (e.g., Byun et al., 2013; Dhiksha & Suresh, 2016; Flynn, 1991; Lillard & Else-Quest, 2005; Mallett & Schroeder, 2015). Few articles, however, compare the two types of teachers; notable exceptions include work by Beatty (2011), who studied teachers in Frobelian settings and Montessori classrooms as well as those in traditional environments, and Danner and Fowler (2015), who investigated traditional and Montessori teachers' attitudes toward the inclusion of disabled children in their classrooms.

In reviewing this U.S. data set, the first hypothesis was that the teacher type, Montessori or traditional, would predict teachers' beliefs about the ease, effectiveness, and normality of autonomy-supportive teaching and controlling teaching. Our second hypothesis was that the teacher type would be correlated to the teacher's description of their personal teaching style, whether autonomy-supportive or controlling.

Methods

Sampling

For the U.S. sample being analyzed, as well as for the other countries included in the initial international data set, convenience sampling was used to recruit participants. U.S. participants were recruited by emails sent to their school accounts or via in-person conversations gauging interest in participating in the study. Those who indicated interest were approached again with the survey and consent forms. For participants who were local to the researcher, signed consent was obtained in person, and likewise surveys were delivered to participants and then returned to the researcher in person. For participants who were not local, a consent form was mailed with the survey, along with an addressed, stamped envelope for their return to the researcher.

Each participant from the United States who completed the survey was given a thank-you gift card worth $20 for a national mass-market retailer. The participants from other countries in the larger, original sample had been either recruited at conferences and not provided with thank-you gifts, or recruited in a way similar to the U.S. sample and provided with a gift card equivalent to $20. Analyses determined that in the larger study (Reeve et al., 2014) no differences were apparent among the data from teachers who received thank-you gifts and those who did not.

Participants

Our data set included 80 U.S. public school teachers, 39 from traditional public schools and 41 from public Montessori schools. In aggregate, 73 teachers identified as female and seven as male. Seventy teachers described their school settings as urban, while the remainder described their schools as suburban or rural. On average, teachers were 41 years old (M = 41.17, SD = 11.66) and had nearly 14 years of teaching experience (M = 13.84, SD = 9.72). Most teachers identified as White (n = 73), while the rest identified as Black, Hispanic, or Native American. To help protect these teachers' identities, participant numbers for these groups are not shared. The teachers were from several states but mainly the Upper Midwest. Teaching levels included 23 preschool/kindergarten, 39 elementary, five middle school, and 12 high school.

Among the Montessori teachers, three identified as male and 38 as female. Thirty-seven identified as White. To aid in maintaining participant anonymity, the remaining teachers' ethnicities are not shared. The Montessori teachers' age range was from 25 to 67 (M = 42.26, SD = 12.57), with two teachers declining to report their ages. Teaching experience ranged from 1 year to 36 years, (M = 14.00, SD = 10.12), with one teacher not reporting years of experience. As for the levels these teachers taught, 18 taught preschool (primary in a Montessori setting), 21 taught elementary, and two taught middle school. Forty teachers described their locations as urban, and one described their location as suburban.

Among the traditional teachers, four identified as male and 35 as female. Thirty-six teachers identified as White, and the remaining ethnicities are not shared. Range of ages among the traditional teachers was 23 years old to 62 years old (M = 40.07, SD = 10.70). Years of experience ranged from 2 years to 34 years (M = 13.67; SD = 9.41). Traditional teachers included five from preschool, 18 from elementary, three from middle school, and 12 from high school, with one not identified (see Table 1).

Upon examining the sample, it was discovered that none of the personal demographics, such as age, ethnicity, experience, or location of school, were significantly related to variables of interest.

Measures

All participants completed a demographic survey and, afterward, a two-part scenario-based questionnaire. Questionnaires were counterbalanced

Table 1

Demographics for Montessori and Traditional Teachers

Type of Teacher	*N*	Mean Age	*SD* Age	Female	Mean Experience	*SD* Experience	White	Location	Level
Montessori	41	42.26	12.6	38	14	10.1	n = 37	urban = 40	preschool = 18
								suburban = 1	elementary = 21
								rural = 0	middle school = 2
									high school = 0
Traditional	39	40.07	10.7	35	13.67	9.41	n = 36	urban = 30	preschool = 5
								suburban = 8	elementary = 18
								rural = 1	middle school = 3
									high school = 12
									Not identified = 1

so the participants received either the controlling or autonomy-supportive scenario first. In the questionnaire, two scenarios were described. An excerpt from each scenario is printed below:

> ***Autonomy-supportive scenario***
> *As you plan and prepare for an upcoming lesson, you think about what your students want and need. You wonder if students will find the lesson interesting and relevant to their lives. To support their interest and valuing of the lesson, you prepare some resources in advance so that they can see how interesting and how important the lesson truly is.*
>
> ***Controlling scenario***
> *As you plan and prepare for an upcoming lesson, you think about what needs to be covered. You make a step-by-step plan of what students are supposed to do and when they are supposed to do it. As the class period begins, you tell students what to do, monitor their compliance closely, and when needed make it clear that there is no time to waste.*

After reading each scenario, teachers rated the degree to which the scenario described their own teaching, from 1 (*not at all*) to 7 (*yes* or *very much*). Then they completed six questions to rate the degree to which they felt the teaching scenario presented was effective, easy to implement, and normative on a 7-point Likert-type scale, ranging from 1 (*no* or *not at all*) to 7 (*yes* or *very much*). These questions included, "Does this teaching scenario describe what the other teachers you know and work with do as teachers?" to assess the level at which the participant felt the scenario was normative and, "Can most teachers teach this way, or is this approach to teaching simply asking too much of teachers?" to assess ease.

To establish ecological validity, the two scenarios in the measure describe common occurrences in classrooms (Reeve et al., 2014). As the data being analyzed are from the original publication of the measure, the reliability was established by having seven raters, experts in SDT, assess the two scenarios to ascertain that one described autonomy-supportive teaching and the other described controlling teaching. Raters were asked to use a 7-point Likert-type scale, in which 1 represented *highly controlling* and 7 represented *highly autonomy-supportive*. Analysis of those responses found the average rating for the controlling scenario was 1.43, the average for the autonomy-supportive scenario was 6.86, and the difference was statistically significant at $p < .01$ (Reeve et al., 2014). To ensure reliability with the sample, Cronbach's alpha reliability on the autonomy-supportive and controlling scale items were calculated by teacher types. For both teacher types, and for the autonomy and controlling scales, the Cronbach's alpha reliability was between .70 and .88 respectively, indicating the measure was reliable with this subset of the larger sample.

Table 2

Descriptive Statistics and One-Way Analyses of Variance of Perceptions on Ease, Effectiveness, and Normality of Autonomy-Supportive or Controlling Teaching Scenarios between Montessori and Traditional Teachers

Variable	Montessori			Traditional			$F(1, 78)$	p	η^2	95% CI
	N	*M*	*SD*	*N*	*M*	*SD*				
Autonomy Support Ease	41	4.42	1.26	39	4.32	1.04	0.13	.716	-	[-0.30, 0.21]
Autonomy Support Effectiveness	41	6.05	0.93	39	5.90	1.03	0.48	.492	-	[-0.29, 0.14]
Autonomy Support Normality	41	4.94	1.41	39	3.64	1.23	19.30	< .001	0.20	[-0.94, -0.36]
Controlling Ease	41	5.02	1.42	39	5.46	1.13	2.30	.134	-	[-0.07, 0.51]
Controlling Effectiveness	41	3.02	1.38	39	3.49	1.20	2.55	.114	-	[-0.06, 0.52]
Controlling Normality	41	3.26	1.48	39	5.21	1.13	43.57	< .001	0.36	[0.68, 1.27]

Analysis

To compare the two sets of data from the U.S. sample, the Montessori and traditional teachers, we ran eight separate two-group one-way ANOVA tests with IBM SPSS Statistics 25. Each ANOVA used teacher type (i.e., traditional or Montessori teachers) as the independent variable. However, the dependent variable for each ANOVA was different across several separate analyses. Specifically, our dependent variables are beliefs about autonomy-supportive teaching ease, effectiveness, and normality; beliefs about controlling teaching ease, effectiveness, and normality; self-reported personal autonomy-supportive teaching style; and self-reported personal controlling teaching style. Due to the number of comparisons, the *p*-value was adjusted to < .006 to control for the possibility of inflated Type I error. This significance threshold was selected based on dividing a commonly accepted *p* value of .05 by eight comparisons to obtain a cutoff for determining significance (Herzog et al., 2019).

Results

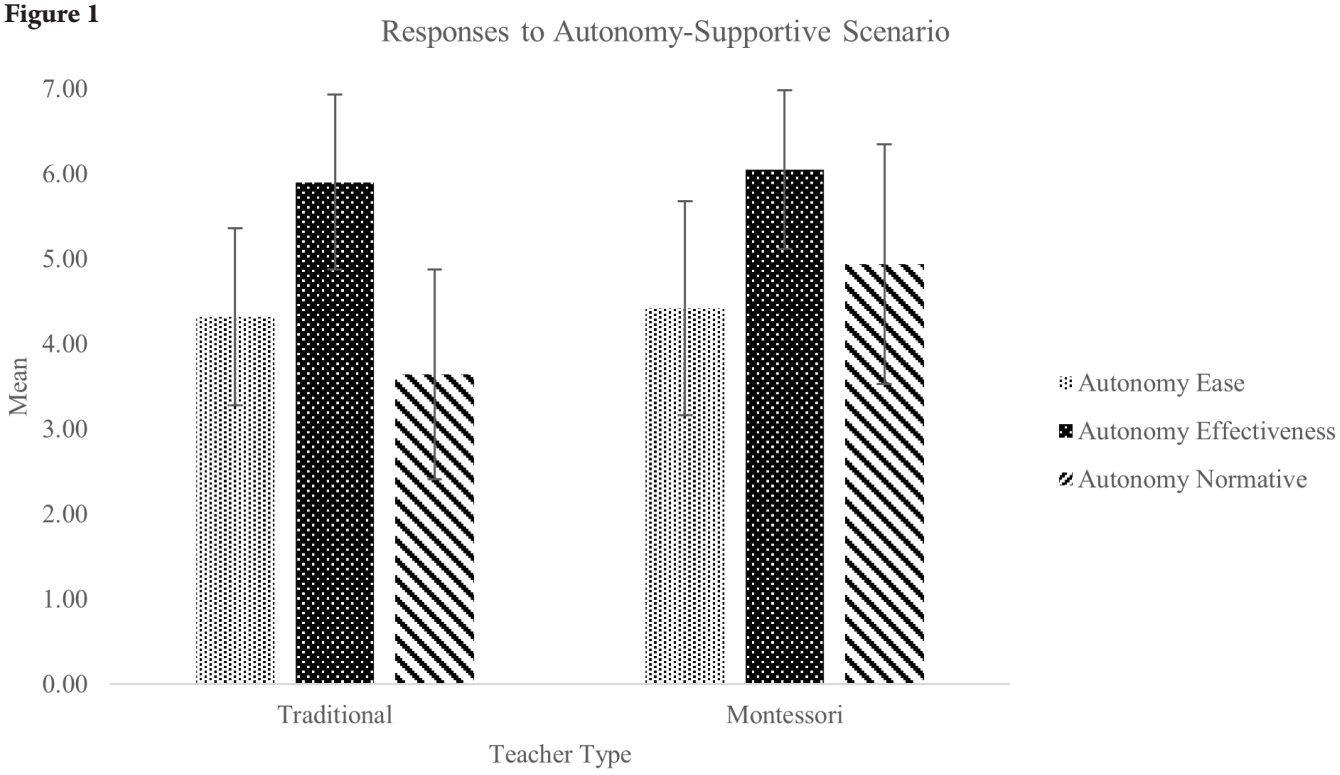
Hypothesis One:

Descriptive statistics and ANOVA results for hypotheses one and two are presented in Table 2. To explore overall differences in the perceptions of ease, effectiveness, and normality of autonomy-supportive (see Figure 1) and controlling scenarios (See Figure 2) between Montessori and traditional teachers, six separate two-group one-way ANOVAs were conducted. Of the six analyses (see Table 2), the only tests yielding significance were in perceptions of autonomy normality, $F(1, 78) = 19.30$, $p < .001$, $\eta^2 = 0.20$, 95% CI: -0.94 to -0.36, and perceptions of controlling normality, $F(1, 78) = 43.57$, $p < .001$, $\eta^2 = 0.36$, 95% CI: 0.68 to 1.27. Indeed, Montessori teachers perceived the autonomy-supportive scenario as significantly more normal than did traditional teachers. Conversely, traditional teachers perceived the controlling scenario as significantly more normal than did Montessori teachers .

Hypothesis Two:

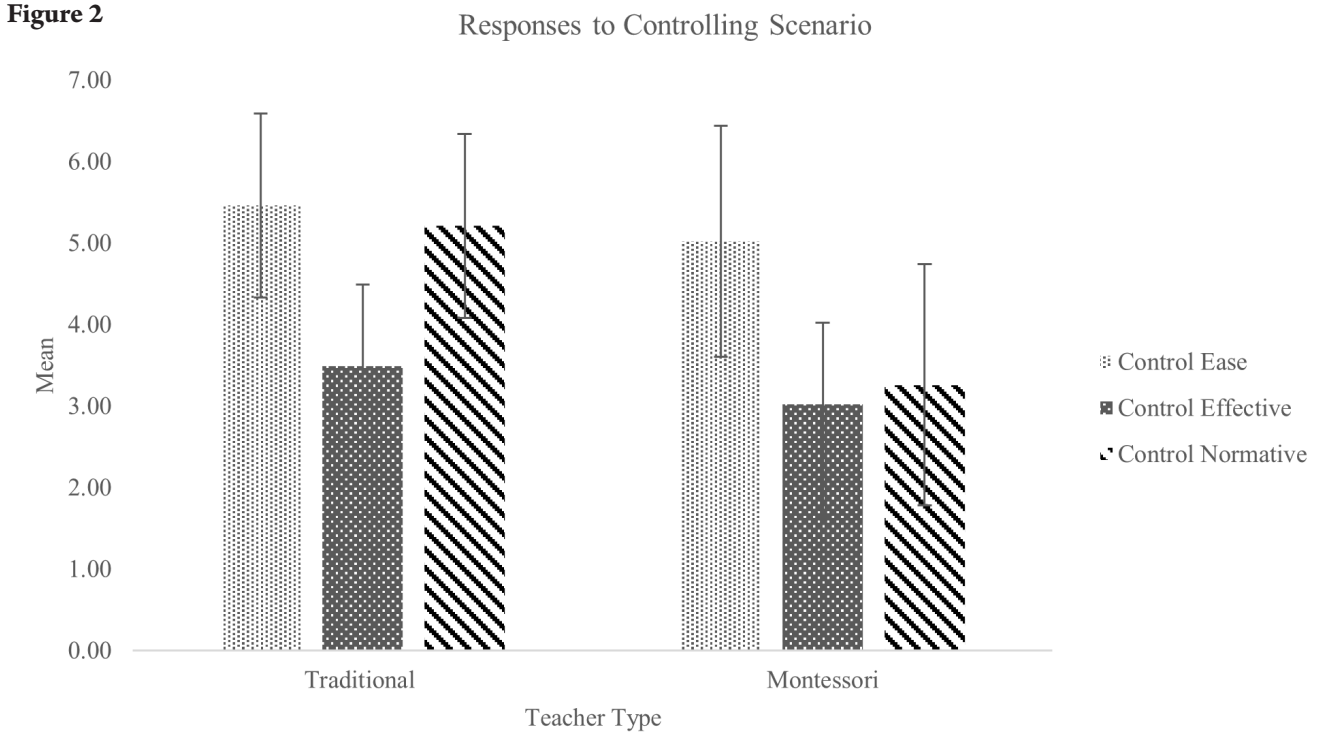
To explore differences in teachers' descriptions of their personal teaching styles by type of teacher training (traditional or Montessori teachers; see Figure 3), two separate two-group one-way ANOVAs were conducted. The first analysis of variance observed differences in Montessori and traditional teachers' perceptions of their personal styles as related to autonomy-supportive, and the second analysis observed differences in perceptions of their personal styles in relation to controlling teaching. No significant difference was found between the two teacher types (Montessori teachers: $N = 41$, $M = 5.22$, $SD = 1.53$; traditional teachers: $N = 39$, $M = 4.97$, $SD = 1.35$) regarding their descriptions of their personal teaching styles as autonomy-supportive, $F(1, 78) = 0.58$,

Figure 1



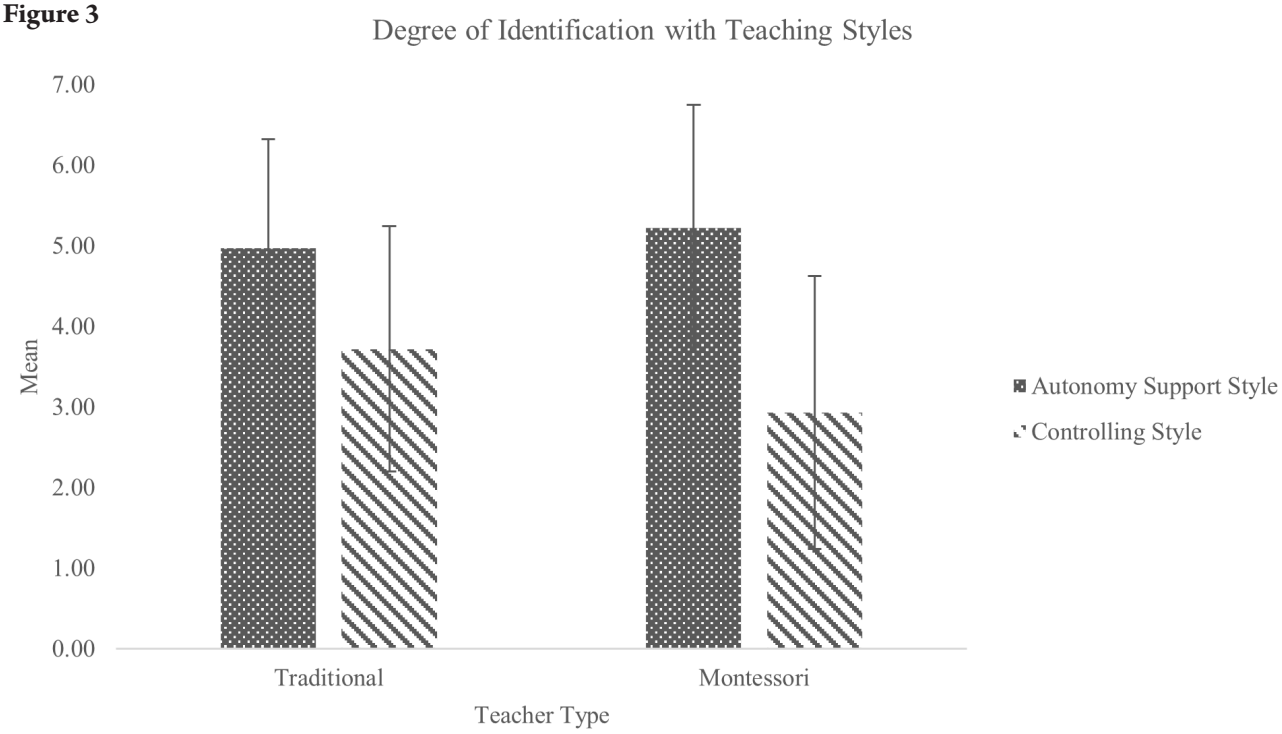
Note: Error bars show standard deviations.

Figure 2



Note: Error bars show standard deviations.

Figure 3



Note: Error bars show standard deviations.

p = .449, 95% CI: -0.44 to 0.20. However, the Montessori teachers (N = 41, M = 2.93, SD = 1.69) described their personal teaching styles as significantly less controlling than those of traditional teachers (N = 39, M = 3.72, SD = 1.52), $F(1, 78) = 4.81$, p = .031, η2 = 0.06, 95% CI: 0.04 to 0.76. In summary, both groups described their teaching as similarly autonomy-supportive; however, the traditional teachers described their teaching as more controlling than did Montessori teachers.

Discussion

An examination of this U.S. subset from a previously published international study found Montessori and traditional teachers shared similarities but also demonstrated some marked differences in their beliefs about motivation. Regarding hypothesis one, both groups of teachers similarly felt that autonomy-supportive teaching is easy and effective. Both groups also similarly felt that controlling teaching is easy to implement but not very effective.

However, the two groups differed significantly when asked if each style was normative, or commonly seen at their schools. Montessori teachers were more likely to say autonomy-supportive teaching was normative ($\eta^2 = 0.20$), and traditional teachers were more likely to say controlling teaching was normative ($\eta^2 = 0.36$). These large effect sizes (Cohen, 1988) indicate very meaningful differences between what Montessori and traditional teachers feel is normative in their schools, providing partial support for hypothesis one.

Partial support was also found for hypothesis two. Both groups felt the autonomy-supportive scenario described their personal teaching practice. However, traditional teachers were more likely to rate the controlling scenario as similar to their teaching style, with a moderate effect size of $\eta^2 = 0.06$, suggesting that the two groups of teachers may conceive of motivation differently. Montessori teachers may see autonomy support as a preferred teaching style and believe they cannot be both autonomy-supportive and controlling. Since the traditional teachers were more likely to identify the controlling teaching as similar to their own style while also endorsing autonomy support, they might envision both motivating strategies as tools that are available when needed (Reeve et al., 2014).

Taken together, the partial support found for both hypotheses points to not only documented differences between the two types of teachers' perceptions about motivation, but also a concern that traditional teachers may be more likely to engage in harmful controlling teaching. Traditional teachers were more likely to report the controlling scenario as similar to their teaching style,

that autonomy-supportive teaching is less normative, and that controlling teaching is more normative, as compared with the Montessori teachers across all three variables. Put simply, traditional teachers see their schools and classrooms as places where more controlling teaching happens, compared to what the Montessori teachers report.

As mentioned, controlling teaching has considerable negative effects on students. In classrooms with controlling teachers, students feel less intrinsic motivation for their schoolwork, more often display negative emotions, and feel their needs for autonomy, relatedness, and competence are thwarted (Ames, 1992; Assor et al., 2005; Basten et al., 2014 Hein et al., 2015; Reeve, 2016). Given the responses from traditional teachers in the sample, one might conclude that students in traditional public schools have some of these negative experiences as they make their way through school each day. At the very least, the data show these students are more likely to experience negativity, as compared with students in Montessori classrooms.

The initial study (Reeve et al., 2014) assessed the influence of culture on motivational beliefs. It is worthy of note when examining this subset of the larger data that there may be differences due to culture, even though all teachers in this sample reside in the United States. Undergoing Montessori training transforms the outlook of the teacher (Cossentino, 2009). Montessorians learn that children are developmentally and biologically driven to learn, and that adults can interfere with this process by misunderstanding how development and learning organically occur. Due to the training they receive and the teaching they perform in specific schools, Montessorians may be a culturally distinct group with its own cultural norms. This is noted in particular ways lessons are carried out, such as the precision of rolling a rug or the unique Language, like Stamp Game applied for a Math lesson. Distinctions are also clear in the various types of teacher-student relationships, such as hands on a teacher's shoulders to gain attention rather than students' hands raised while remaining seated (Cossentino, 2005, 2009). Given that Montessori education may be considered culturally distinct from traditional education, it is entirely possible the differences noted in this study are tied to culture. The original study found that in cultures that identify as collectivistic, likelihood is greater that teachers will identify with the controlling teaching scenario (Reeve et al., 2014). This may map on to the current study, considering Montessori classrooms often have students working on individual tasks and traditional classrooms more often host whole-class activities (Lillard, 2019).

Limitations and Future Directions

The sample size is a limitation, with only 39 traditional and 41 public Montessori teachers included in this study. With a convenience sample such as this, we were unable to fully assess the differences in endorsement of autonomy and control across various grade levels. Future research should consider using a much larger sample size to include the voices of more teachers nationwide as well as matched samples of teachers across grade/age levels to observe how autonomy support and control vary across school settings.

In addition, questions about the types of training the Montessori teachers received, such as from AMS, Association Montessori Internationale, International Montessori Council, or Montessori Educational Programs International, and how that training affects teachers' views on motivation, could also be examined in a larger sample. All samples for the international study were collected from public schools, but in future research comparing the Montessori Method with traditional education in the United States, it might also be informative to include both public and private school teachers.

An additional limitation to examining participants' beliefs in this sample is that these teachers all self-selected into their particular teaching method, be it traditional or Montessori. It is not known if the Montessori teachers chose that method because a less controlling nature suits their personality, or if the training Montessori teachers undertake molds them into less controlling teachers. It is also not known if the traditional teachers began their careers avoiding controlling teaching but eventually adopted more controlling tactics as a way to provide structure in the classroom and cope with the high levels of responsibility and accountability teachers face (Reeve, 2009).

Conclusion

This study examined the U.S. subset of an international investigation on teachers' perceptions of motivation and descriptions of their personal motivating styles. When comparing public Montessori teachers with traditional public school teachers, findings showed that both groups rated themselves fairly high in autonomy support, and felt that autonomy-supportive teaching was effective and relatively easy. It was also found that both groups agreed that controlling teaching was relatively easy but less effective. However, there were significant

differences between the groups when comparing types of teaching they felt were normative, as well as in the degree to which teachers felt the controlling scenario described their personal teaching style. Montessori teachers reported autonomy-supportive teaching as more normative and controlling teaching as less normative than did traditional teachers. In addition, traditional teachers reported that the controlling scenario described their personal teaching style significantly more than the Montessori teachers did.

Programs exist to train teachers how to use more autonomy-supportive and less controlling teaching methods (e.g., Cheon & Reeve, 2015). Research studies, such as this one, can help identify subtle variations among groups of teachers to perhaps more accurately tailor autonomy-supportive education training. Teaching with autonomy support has many impactful benefits for both students and teachers (Cheon et al., 2020), whereas controlling teaching has been shown to be detrimental (Reeve, 2016). It is clear that the traditional teachers do, in fact, endorse autonomy support, so their training might focus on ways to increase their use of such methods and decrease controlling ones, rather than merely introducing them to autonomy-supportive ideas.

This research provides empirical support to confirm common beliefs about Montessori education: as teachers endorse autonomy support, students have freedom within an educational structure; as teachers do not use punitive methods to maintain order, students are not subjected to controlling teaching. Given this, Montessori education aligns well with the concepts of SDT (Moss & Smuda, 2022).

Author Information

Jennifer D. Moss is an assistant professor of psychology at Emporia State University. She can be reached at jmoss3@emporia.edu.
https://orcid.org/0000-0002-9207-0043

Theodore J. Wheeler is a graduate student at Kansas State University. He can be reached at twheele1@ksu.edu.
https://orcid.org/0000-0001-8197-8702

References

American Montessori Society. (2022, n.d.). *What is Montessori education?* https://amshq.org/About-Montessori/What-Is-Montessori

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology*, *84*(3), 261–271. https://doi.org/10.1037//0022-0663.84.3.261

Assor, A., Kaplan, H., Kanat-Maymon, Y., & Roth, G. (2005). Directly controlling teacher behaviors as predictors of poor motivation and engagement in girls and boys: The role of anger and anxiety. *Learning and Instruction*, *15*(5), 397–413. https://doi.org/10.1016/j.learninstruc.2005.07.008

Bartholomew, K. J., Ntoumanis, N., Ryan, R. M., Bosch, J. A., & Thøgersen-Ntoumani, C. (2011). Self-determination theory and diminished functioning: The role of interpersonal control and psychological need thwarting. *Personality and Social Psychology Bulletin*, *37*(11), 1459–1473. https://doi.org/10.1177/0146167211413125

Basargekar, A., & Lillard, A. S. (2023). Motivation and self-determination in Montessori education. In A. K. Murray, E. Tebano Ahlquist, M. K. McKenna, & M. Debs (Eds.), *The Bloomsbury handbook of Montessori education* (pp. 261–270). Bloomsbury.

Basten, M., Meyer-Ahrens, I., Fries, S., & Wilde, M. (2014). The effects of autonomy-supportive vs. controlling guidance on learners' motivational and cognitive achievement in a structured field trip. *Science Education*, *98*(6), 1033–1053. https://doi.org/10.1002/sce.21125

Beatty, B. (2011). The dilemma of scripted instruction: Comparing teacher autonomy, fidelity and resistance in the Froebelian kindergarten, Montessori, direct instruction, and success for all. *Teachers College Record*, *113*(3), 395–430. https://doi.org/10.1177/016146811111300305

Byun, W., Blair, S. N., & Pate, R. R. (2013). Objectively measured sedentary behavior in preschool children: Comparison between Montessori and traditional preschools. *International Journal of Behavioral Nutrition and Physical Activity*, *10*(1), 2. https://doi.org/10.1186/1479-5868-10-2

Casquejo Johnston, L. M. (2016). Examining a Montessori adolescent program through a self-determination theory lens: A study of the lived experiences of adolescents. *Journal of Montessori Research*, *2*(1), 27–42. https://doi.org/10.17161/jomr.v2i1.4994

Cheon, S. H., & Reeve, J. (2015). A classroom-based intervention to help teachers decrease students' amotivation. *Contemporary Educational Psychology*, *40*, 99–111. https://doi.org/10.1016/j.cedpsych.2014.06.004

Cheon, S. H., Reeve, J., & Vansteenkiste, M. (2020). When teachers learn how to provide classroom structure in an autonomy-supportive way: Benefits

to teachers and their students. *Teaching and Teacher Education, 90,* 103004. https://doi.org/10.1016/j.tate.2019.103004

Cheon, S. H., Reeve, J., Yu, T. H., & Jang, H. R. (2014). The teacher benefits from giving autonomy support during physical education instruction. *Journal of Sport and Exercise Psychology, 36*(4), 331–346. https://doi.org/10.1123/jsep.2013-0231

Christensen, O. (2019). Montessori identity in dialogue: A selected review of literature on teacher identity. *Journal of Montessori Research, 5*(2), 45–56. https://doi.org/10.17161/jomr.v5i2.8183

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Erlbaum.

Cossentino, J. (2005). Ritualizing expertise: A non-Montessorian view of the Montessori method. *American Journal of Education, 111*(2), 211–244. https://doi.org/10.1086/426838

Cossentino, J. (2009). Culture, craft, & coherence: The unexpected vitality of Montessori teacher training. *Journal of Teacher Education, 60*(5), 520–527. https://doi.org/10.1177/0022487109344593

Danner, N., & Fowler, S. (2015). Montessori and non-Montessori early childhood teachers' attitudes towards inclusion and access. *Journal of Montessori Research, 1*(1), 28–41. https://doi.org/10.17161/jomr.v1i1.4944

Deci, E. L., Spiegel, N. H., Ryan, R. M., Koestner, R., & Kauffman, M. (1982). Effects of performance standards on teaching styles: Behavior of controlling teachers. *Journal of Educational Psychology, 74*(6), 852–859. https://doi.org/10.1037/0022-0663.74.6.852

Dhiksha, J., & Suresh, A. (2016). Self-esteem and academic anxiety of high school students with Montessori and traditional method of education. *Indian Journal of Health & Wellbeing, 7*(5), 543–545.

Fisher, D. (2009). The use of instructional time in the typical high school classroom. *The Educational Forum,* 73(2), 168–176. https://doi.org/10.1080/00131720902739650

Flynn, T. M. (1991). Development of social, personal and cognitive skills of preschool children in Montessori and traditional preschool programs. *Early Child Development and Care, 72*(1), 117–124. https://doi.org/10.1080/0300443910720111

Haerens, L., Aelterman, N., Vansteenkiste, M., Soenens, B., & Van Petegem, S. (2015). Do perceived autonomy-supportive and controlling teaching relate to physical education students' motivational experiences through unique pathways? Distinguishing between the bright and dark side of motivation. *Psychology of Sport and Exercise, 16,* 26–36. https://doi.org/10.1016/j.psychsport.2014.08.013

Hein, V., Koka, A., & Hagger, M. S. (2015). Relationships between perceived teachers' controlling behaviour, psychological need thwarting, anger and bullying behaviour in high-school students. *Journal of Adolescence, 42,* 103–114. https://doi.org/10.1016/j.adolescence.2015.04.003

Herzog, M. H., Francis, G., & Clarke, A. (2019). *Understanding statistics and experimental design: How to not lie with statistics.* Springer International Publishing. https://doi.org/10.1007/978-3-030-03499-3

Jang, H., Reeve, J., & Deci, E. L. (2010). Engaging students in learning activities: It is not autonomy support or structure but autonomy support and structure. *Journal of Educational Psychology, 102*(3), 588–600. https://doi.org/10.1037/a0019682

Katz, I., & Shahar, B. H. (2015). What makes a motivating teacher? Teachers' motivation and beliefs as predictors of their autonomy-supportive style. *School Psychology International, 36*(6), 575–588. https://doi.org/10.1177/0143034315609969

Krugerud, T. (2015). *Benefits of choice in a Montessori classroom on student behavior and focus.* [Master's thesis, University of Wisconsin–River Falls]. Minds@UW. http://digital.library.wisc.edu/1793/74967

Lillard, A., & Else-Quest, N. (2006). Evaluating Montessori education. *Science, 313*(5795), 1893–1894. https://doi.org/10.1126/science.1132362

Lillard, A. S. (2019). Shunned and admired: Montessori, self-determination, and a case for radical school reform. *Educational Psychology Review, 31*(4), 939–965. https://doi.org/10.1007/s10648-019-09483-3

Lopata, C., Wallace, N. V., & Finn, K. V. (2005). Comparison of academic achievement between Montessori and traditional education programs. *Journal of Research in Childhood Education, 20*(1), 5–13. https://doi.org/10.1080/02568540509594546

Mallett, J. D., & Schroeder, J. L. (2015). Academic achievement outcomes: A comparison of Montessori and non-Montessori public elementary school students. *Journal of Elementary Education,* 25(1), 39–53. https://www.public-montessori.org/wp-content/uploads/2017/03/Mallett-Schroeder-2015-Comparison-of-Montessori-and-non-Montessori-public-elementary-school-students.pdf

Manner, J. C. (2007). Montessori vs. traditional education in the public sector: Seeking appropriate comparisons of academic achievement (EJ1099115). ERIC; *Forum on Public Policy Online*, *2007*(2). https://eric.ed.gov/?id=EJ1099115

Nguyen, H. (2018). Teacher preparation programs in the United States. *International Journal of Progressive Education*, *14*(3), 76–92. https://doi.org/10.29329/ijpe.2018.146.6

Pianta, R. C., Belsky, J., Houts, R., & Morrison, F. (2007). Opportunities to learn in America's elementary classrooms. *Science*, *315*(5820), 1795–1796. https://doi.org/10.1126/science.1139719

Rathunde, K., & Csikszentmihalyi, M. (2005). The social context of middle school: Teachers, friends, and activities in Montessori and traditional school environments. *The Elementary School Journal*, *106*(1), 59–79. https://doi.org/10.1086/496907

Reeve, J. (2009). Why teachers adopt a controlling motivating style toward students and how they can become more autonomy supportive. *Educational Psychologist*, *44*(3), 159–175. https://doi.org/10.1080/00461520903028990

Reeve, J. (2016). Autonomy-supportive teaching: What it is, how to do it. In W. Liu, J. Wang, & R. Ryan, (Eds.), *Building autonomous learners* (pp. 129–152). Springer. https://doi.org/10.1007/978-981-287-630-0_7

Reeve, J., Jang, H., Carrell, D., Jeon, S., & Barch, J. (2004). Enhancing students' engagement by increasing teachers' autonomy support. *Motivation and Emotion*, *28*(2), 147–169. https://doi.org/10.1023/b:moem.0000032312.95499.6f

Reeve, J., Vansteenkiste, M., Assor, A., Ahmad, I., Cheon, S. H., Jang, H., Kaplan, H., Moss, J. D., Olaussen, B. S., & Wang, C. K. J. (2014). The beliefs that underlie autonomy-supportive and controlling teaching: A multinational investigation. *Motivation and Emotion*, 38(1). https://doi.org/10.1007/s11031-013-9367-0

Ryan, R. M., & Deci, E. L. (2017). *Self–determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Publications.

Moss, J. D., & Smuda, A. (2022, April 21–26). *Reach and relationship: A review of the joint literature of Montessori and self-determination theory.* Paper presentation at the American Educational Research Association Annual Conference. San Diego, California, United States.

Soenens, B., Park, S. Y., Vansteenkiste, M., & Mouratidis, A. (2012). Perceived parental psychological control and adolescent depressive experiences: A cross-cultural study with Belgian and South-Korean adolescents. *Journal of Adolescence*, *35*(2), 261–272. https://doi.org/10.1016/j.adolescence.2011.05.001

Wells, K. B. (2014). *Autonomy-supporting teaching practices in public Montessori schools* (Publication No. 1571891) [Master's thesis, Saint Mary's College of Education]. Saint Mary's College of California ProQuest Dissertations & Theses.

Book Review

The Montessori Movement in Interwar Europe: New Perspectives

By Christine Quarfood
Palgrave Macmillan, 2022, 310 pp., US$99 (e-book), ISBN 9783031140723

Mira Debs, Yale University

***Keywords**: Montessori movement, Maria Montessori, interwar Europe*

In recent years, biographical studies of Maria Montessori have increasingly moved away from presenting Montessori as a singular pedagogical genius to considering Montessori as a movement builder immersed in a complicated, dense, and changing international network of theorists, practitioners, and policymakers. Scholars have highlighted the wide-ranging intellectual networks of feminists, doctors, anthropologists, philosophers, theosophists, Catholics, fascists, and pacifists whose work Montessori was reading and actively engaging with even after leaving academic research. In addition, new research presents how all of these thinkers were actively debating Montessori education, grappling with a wide range of pedagogical, theological, and philosophical issues, and defying the representation of Montessori education as a single ideological monolith.

Christine Quarfood, professor of history of ideas at the University of Gothenburg, Sweden, makes a vital contribution to this conversation. Thanks to a translation from Swedish to English, Christine Quarfood's 2017 study, *Montessoris Pedagogiska Imperium: Kulturkritik och Politik i Mellankrigstidens Montessorirörelse*, is now available to English-speaking readers as *The Montessori Movement in Interwar Europe: New Perspectives*.

Quarfood is curious to examine why such dynamic expansion of the Montessori movement occurred around Europe in the interwar period. The interwar period was a time when the European public was sympathetic to an educational approach that promised lasting peace through transforming children's early experiences, even as the adults grappled with pedagogical questions that continue today about the Montessori Method.

Building off her previous research (Quarfood, 2005) on Montessori's early career and transition from working with students with disabilities to nondisabled children, Quarfood's second book, *Montessoris Pedagogiska Imperium: Kulturkritik och Politik i Mellankrigstidens Montessorirörelse* [*The Montessori Movement in Interwar Europe: New Perspectives*] (Daidalos: 2017), brings to light many contemporary education journals in the United Kingdom and Italy that reconstruct a European audience vigorously debating Montessori's ideas.

Even as the public was receptive to Montessori's larger views, audiences in Britain, Italy, and elsewhere in Europe continued to grapple with questions about how much of Montessori's ideas were original and what she borrowed from others, to what extent her approach was scientific or pedagogical, how freely teachers could innovate and whether her insistence on orthodoxy stifled innovation, who could train teachers, and the relative importance of teachers versus the educational materials.

Chapter 1 introduces the reader to the term "Montessorism," which was used in the 1920s and 1930s to reflect Montessori's unique worldview, akin to other isms like feminism and pacifism. The remainder of the chapter presents a snapshot outline of Montessori's career up to the 1920s.

Chapter 2 takes on a debate about the "invisible Montessori teacher," whom critics in the interwar period argued was excessively devalued in favor of emphasis on students' learning directly from Montessori materials. Echoing arguments made by Suzanne Stewart-Steinberg (2007), Quarfood suggests that teachers' central role in the Montessori classroom is their position as deliberate and studied observers conducting surveillance on their students. Quarfood connects the invisible Montessori teacher to other contemporary ideas of surveillance, from Michel Foucault's concept of disciplinary power to Jeremy Bentham's panopticon prison model. The chapter offers intriguing questions for future empirical research: *To what extent is teacher observation impactful because the observation leads the teacher to modify their instruction? Or to what extent does the process of being observed impact the students in real time?*

Chapter 3 attempts to explain the reasons behind the Montessori movement's rapid expansion during the interwar period. In contrast to previous explanations that focused on promotional news coverage of the movement, Quarfood argues that a common point of resonance is Montessori's emphasized view of the universal need to emancipate the child from adult oppression regardless of socioeconomic circumstance and cultural background. Whereas previous researchers had critiqued Montessori for abandoning her early work with poor children, Quarfood documents how Montessori perceived herself as the champion for universal children's rights even as she accepted the financial support of wealthy patrons.

Chapter 4 documents the interwar popularity of Montessori education in the United Kingdom. Through an analysis of articles published in the *Times Education Supplement*, Quarfood follows public debates within the British Montessori community, especially between "eclectics" who linked Montessori pedagogy to other educational reform movements and "pure Montessorians" who followed Montessori's instructions to use her Method in isolation. *Times Education Supplement* contributors debated on who could train Montessori teachers, whether teachers could modify the materials, and—with the emphasis on individual rather than class-wide work—the question of the movement giving too much power to children. With Montessori siding squarely with the orthodox camp, former members of the London Montessori Society circulated a letter in 1922 protesting Maria Montessori's "extreme autocratic government" (p. 81), which granted far more freedom to children than it did to its members, a charge that was to continue in other countries throughout Montessori's career.

Chapter 5 examines interwar-era Montessorism through what Quarfood calls Montessori's "cultural-critical phase," a middle period in her career when she was less focused on developing new curricula and instead working to influence the cultural milieu around her. Quarfood focuses on the debates published in European Montessori journal *The Call of Education* (1924–1925) with articles published in English, French, German, and Italian. In addition to continuing to hash out debates made in the British Montessori community, *The Call of Education* contributors paid special attention to Montessori's articulation of the sensitive periods of child development, linking Montessori's work to contemporary developmental psychologists and psychoanalysts.

Chapters 6 through 9 present a case study of Montessorism in Italy from 1918 until Montessori left Italy in 1934. Chapter 6 details Montessori's initial optimism in the immediate post-World War I period, when experimental government-supported Montessori schools were established in Rome, Milan, and Naples. In 1922, Italian educational experts began to abandon the Montessori experiment, critiquing the prohibitive cost of setting up classrooms, the marginalization of the teacher, and Montessori's unwillingness to allow teachers to innovate. Having pulled her support for the existing

government-supported Montessori schools in the wake of this criticism, Montessori pivoted enthusiastically toward the fascist regime as a potential new source for political and economic patronage.

Chapter 6 also includes a useful summary of the historiography (primarily in non-English sources) of Montessori's relationship with Benito Mussolini and the Italian fascist regime. Quarfood is, as are others, to some extent examining a variation of the U.S. Watergate question—"What did the president know, and when did he know it?"—as she deconstructs when Montessori realized the dangers of collaborating with the fascist regime and how complicit she was as a result. In contrast to previous scholars who variably argue that Montessori was politically naive or opportunistic, Quarfood concludes Montessori and her son, Mario Montessori, were deeply invested in the regime even with mounting evidence of its brutal nature following Mussolini's transition to dictatorial rule in 1925. In contrast to colleagues like pedagogist Giuseppe Lombardo Radice, who left Mussolini's Ministry of Education following the fascist-led assassination of socialist politician Giacomo Matteotti in 1924, the Montessoris continued to publicly support the regime until the early 1930s, when they came under increasing suspicion and surveillance for being suspected of anti-fascism.

Quarfood paints a portrait of both Montessoris enthusiastically and publicly endorsing Mussolini, meeting with him personally on several occasions, making Mussolini the honorary head of the Opera Nazionale Montessori (the national Italian Montessori organization), joining fascist organizations, and repeatedly appealing to Mussolini for greater funding to support their Italian and international endeavors. In return, Montessori schools in Italy grew to 170, and Mussolini supported a Montessori teacher training college in Rome, even as the Montessori professor of fascist culture was reporting on her fellow professors at the college.

Quarfood also reinterprets the question of why Mussolini was so willing to embrace Montessori education, given that a method focused on independence might be seen as incompatible with an increasingly totalitarian regime. In contrast to previous arguments that Mussolini elevated Montessori education for its international prestige so as to legitimize the new regime, she provides evidence that fascist politicians such as Minister of Public Education Pietro Fedele believed the Montessori Method could be particularly "fertile soil for patriotic feeling" to build fascist Italian children (Quarfood, 187).

Rather than the increasing intrusion of fascism in the classroom, Quarfood argues that the failure of the fascist regime to fully support a Montessori teachers' college was the breaking point that led Montessori to leave Italy and abandon the project of building a system of Montessori schools throughout Italy.

Quarfood's study has a rich array of insights and historical nuggets, and the vigorous debates within Montessorism offer ample questions for further study:

- *To what extent did the unresolved questions debated by Montessori adherents and interested others limit the spread of the movement as measured in more concrete terms, such as the numbers of teachers trained and schools created?*

- *As a transnational movement with expansion occurring simultaneously in Europe, Africa, Latin America, and Asia, to what extent were these debates connected across these regions?*

- *Does any evidence show, as Montessori was entering this cultural-critical phase, that she was reflecting and changing her approach in response to public critiques, especially as she subsequently developed the Elementary curriculum of Great Lessons while working in India?*

- *And finally, how can learning the long history of debate within Montessorism instruct contemporary Montessori educators in engaging with and integrating constructive criticism and critiques?*

Ultimately, although Montessori might have hoped for obedient practitioners faithfully implementing her Method, Quarfood's study documents European, interwar-period Montessori educators vigorously and repeatedly questioning every aspect of the pedagogy. It is refreshing to uncover how this long history of intellectual dynamism and debate reveals the dense, multilayered sediment that undergirds the modern global Montessori movement.

Author Information

Mira C. Debs is director of the Education Studies Program and a lecturer in sociology at Yale University. She can be reached at mira.debs@yale.edu. https://orcid.org/0000-0001-5234-0689

References

Quarfood, C. (2005). *Positivism med Mänskligt Ansikte. Montessoripedagogikens Idéhistoriska* [*Positivism with a Human Face. The History of Ideas of Montessori Pedagogy*]. Brutus Östlings bokf Symposion.

Quarfood, C. (2017). *Montessoris Pedagogiska Imperium: Kulturkritik och Politik i Mellankrigstidens Montessorirörelse*. Daidalos.

Stewart-Steinberg, S. (2007). *The Pinocchio Effect: On Making Italians, 1860–1920*. University of Chicago Press.

Rediscovering the Child: Review of Montessori Educator Research Projects 2023–2024

Heather E. Gerker, University of Kansas

Abstract: Maria Montessori's early emphasis on systematic observation and experimentation to understand children's learning predates the formal recognition of the "teacher as researcher" role, which emerged in the 1950s. This article explores the use of action research today in Montessori education, focusing on classroom-based action research (CBAR) and practitioner inquiry as key methodologies for enhancing teaching practices. We begin by defining classroom-based action research and its application in Montessori teacher education, highlighting its role in fostering reflective, evidence-based investigations that improve classroom practices. Two CBAR studies from the University of Wisconsin-River Falls are presented: (1) Kaul's exploration of student choice in math practice and (2) Thompson's investigation of structured literacy in a Montessori Children's House. The article also discusses practitioner inquiry projects from Loyola University Maryland, which examine the inclusion of students with attention deficit-hyperactivity disorder (ADHD) and the effectiveness of Montessori Math materials in promoting math fluency.

Montessori utilized systematic approaches to experimentation and observation to understand and support children's learning, long before the concept of teacher as researcher is cited to have first emerged in the 1950s (Carver & Hassebroek, 2023; Henthorn et al. 2024). Today, research conducted by teachers to inform and improve their teaching practices is referred to by many names, including *classroom-based action research* and *practitioner inquiry*. Both types of action research are common in Montessori teacher education programs. In this second article of a series titled, "Rediscovering the Child," we begin with describing classroom-based action research in the context of Montessori teachers as practitioners. Then, we highlight two classroom-based studies from the University of Wisconsin-River Falls. Next, we explain how practitioner inquiry projects can deepen educators' understanding of issues and lead to action. Finally, we highlight two practitioner inquiry studies from Loyola University Maryland.

Classroom-based Action Research

The overarching term *action research* refers to an investigative approach that uses ongoing cycles of observation, reflection, and action to identify solutions to challenges people experience in their everyday lives (Stringer & Aragón, 2020). A variety of phrases and terms are used to describe various types of action research. The following two studies are classroom-based action research (CBAR) projects. CBAR "involves teachers conducting collaborative, evidence-based investigations into their

own classroom routines and relationships with a view to understanding and improving the quality and justice of their practices in the classroom" (Coghlan & Brydon-Miller, 2014, p. 103).

Montessori teachers are taught the importance of deep self-awareness and time for reflection as crucial to their role as teachers. CBAR builds on this aspect of Montessori teaching and requires teachers to actively collect evidence from their classrooms to focus their reflections. The power of CBAR is not only in classroom investigations but also in sharing the findings with a larger audience (Coghlan & Brydon-Miller, 2014). As such, this review supports the sharing of Montessori CBAR projects and describes two such studies below.

Kaul, A. (2024). ***An exploration of upper elementary students' experiences with math practice using choice, self-checking, and non-didactic manipulatives*** **[Master's paper, University of Wisconsin-River Falls]. https://minds.wisconsin.edu/handle/1793/85705**

Kaul, an Elementary teacher, conducted an action research project at a public charter Montessori school. The purpose of her project was to explore how Upper Elementary students in a Montessori classroom experience being offered choice in their Math practice materials. Aimed at amplifying the voices of her 9- to 12-year-old students, her research sought to better understand their needs while addressing local district math requirements for all learners. Kaul designed her study to capture her students' experiences through a mix of closed and open-ended survey questions. Ultimately, her action research aimed to empower students to make informed choices and develop self-awareness in learning math, providing valuable insights into their learning experiences. The study revealed that Upper Elementary Montessori students appreciate having options among various learning materials and can effectively reflect on why a specific choice resonates with them personally.

Thompson, S. (2024). ***Reading development in a Montessori pre-K and kindergarten classroom*** **[Master's paper, University of Wisconsin-River Falls]. https://minds.wisconsin.edu/handle/1793/85540**

Thompson's action research project explores the effects of introducing structured literacy in a public Montessori Children's House. Thompson hypothesized that applying structured literacy with 4- and 5-year-olds would enhance their literacy development. Through her research, Thompson discovered that providing a reading chair, where students could read to one another or to a teacher, motivated them to advance their skills in spelling variations and high-frequency words. Her study showed that combining encoding practices with the movable alphabet and image cards, along with offering a choice of phonetic readers, enhanced students' learning and enjoyment. This approach created a feedback loop that was more effective than using traditional two-part image and word label cards. When children used the movable alphabet alongside label cards, they could identify and correct their own mistakes, thereby refining their encoding skills and progressing further than if they had focused solely on decoding from booklets. The findings of this study highlight the compatibility of Montessori methods and practices for reading instruction with the principles of the science of reading. Additionally, the findings emphasize the positive effects of adhering to the Montessori scope and sequence on children's reading development.

Practitioner Inquiry

Practitioner inquiry is similar to CBAR, as they are both conducted by educators in relation to their own teaching practices (Rutten and Wolkenhauer, 2023). Practitioner inquiry, however, does not always take place in the classroom. The two studies featured below are practitioner inquiry projects that explored topics the individual researchers experience in their practices: (1) inclusion of students with ADHD in a Montessori Elementary classroom and (2) the effectiveness of Montessori Math materials in fostering math fluency.

Josloff, R. (2024). ***ADHD in the Montessori Elementary classroom: Teacher perspectives on alignment with Montessori philosophy, methods, and the prepared environment*** **[Master's paper, Loyola University Maryland].**

Josloff investigated Montessori teachers' perspectives on their ability to meet the needs of first– through sixth-grade students with ADHD, using both quantitative and qualitative survey data. Their study explored the alignment of Montessori philosophy and methods used to teach learners with ADHD. Further, the study assessed teachers' understanding of ADHD's positive attributes, like creativity and higher-order thinking. Key findings of this study reveal a need for increased ADHD professional development for Montessori educators. Additionally, the importance of movement, flexibility, and individualization in teaching students with ADHD is in alignment with core principles of Montessori education. Yet, these key components of Montessori may be

perceived by educators as both challenging and beneficial. Josloff's research aimed to enhance the effectiveness of Montessori education for children with ADHD and provided insights into maximizing the potential of Montessori education to serve children with ADHD.

Rojas-Rispoli, V. (2024). *Exploring Montessori Math materials and their impact on math fluency* [Master's paper, Loyola University Maryland]. https://www.montessorimathtoday.com/

Rojas-Rispoli explored Elementary Montessori educators' perceptions of the effectiveness of Montessori materials in enhancing math fluency among students, through interviews with seven Lower Elementary-trained Montessori teachers actively engaged in teaching Math. The findings present a nuanced view of Montessori Math education, showcasing many positive aspects while also recognizing opportunities for improvement. Montessori educators largely support Montessori Math materials for their effectiveness in fostering math fluency, but they also encourage the inclusion of additional resources and methods to fill gaps and enrich the learning experience. Rojas-Rispoli's study includes actionable suggestions for incorporating math education research findings into how children learn math through a dynamic approach to Montessori education that addresses the needs of today's learners.

Conclusion

Montessori's pioneering work laid the foundation for a systematic approach to understanding children's learning, evolving into action research practices such as classroom-based research and practitioner inquiry. These methodologies empower educators to engage in reflective cycles of observation and action, fostering a deeper understanding of their teaching practices and students' diverse needs. The studies from the University of Wisconsin-River Falls and Loyola University Maryland exemplify how teacher research enhances educational outcomes and promotes continuous improvement in classrooms. We encourage you to also explore additional teacher research projects in the American Montessori Society's research library online.

Author Information

Heather E. Gerker is an associate researcher at the Center for Learner Agency Research and Action at the University of Kansas. She can be reached at hgerker@ku.edu. https://orcid.org/0000-0002-8011-6921

References

American Montessori Society. (n.d.). Montessori research library. https://amshq.org/Research/ResearchLibrary

Carver, K., & Hassebroek, S. (2023). Rediscovering the Child: Review of Montessori Action Research Studies 2022–2023. *Journal of Montessori Research, 9*(2). https://doi.org/10.17161/jomr.v9i2.21357

Coghlan, D., & Brydon-Miller, M. (Eds.). (2014). *The SAGE encyclopedia of action research.* Sage.

Henthorn, R., Lowden, K., & McArdle, K. (2024). 'It gives meaning and purpose to what you do': Mentors' interpretations of practitioner action research in education. *Educational Action Research, 32*(2), 169–185. https://doi.org/10.1080/09650792.2022.2106260

Stringer, E. T., & Aragón, A. O. (2020). *Action research.* Sage.

Rutten, L., & Wolkenhauer, R. (2023). What's the point? A case study characterizing teacher candidates' purposes for practitioner inquiry. *Action in Teacher Education, 45*(1), 52–67. https://doi.org/10.1080/01626620.2022.2157906