IDENTIFYING CHALLENGES TO THE FUTURE OF PUBLIC MONTESSORI

ELEMENTARY SCHOOLS

BY

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Abstract

Based on an online survey with 85 principals and other leaders in public

Montessori elementary schools, this study provides an update on the characteristics of

Montessori education in public elementary schools as they begin facing the new

challenges of NCLB. Despite the lack of emphasis on traditional testing practices in

Montessori education, the study finds that many schools have participated in

standardized testing programs for many years and that support for testing practices

does not differ between those with and those without Montessori certification. Even

though they struggle with budget cuts, stricter state and federal requirements and

teacher shortages, public Montessori elementary schools strive to maintain a unique

educational environment through certified teachers, ongoing professional support for

teachers and well-equipped classrooms.

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Chapter 1: Introduction

The Montessori Method has long been associated with preschool education, but has been growing as an option for the elementary years. In fact, Montessori education has become popular as a school of choice in the public arena. In 1993, it was reported that 29 of the 100 largest U.S. school systems offered Montessori programs (MPSC, 1993b). The American Montessori Society estimates 325 Montessori programs in charter and public schools today (American Montessori Society, n.d.b). Despite Montessori's prevalence in public schools, no recent studies have been published to describe these programs in terms of their enrollment characteristics or Montessori practices.

Montessori has grown as a program option in public schools even though its unique features create challenges in fitting into mainstream requirements. Many aspects of the Montessori elementary classroom are unique relative to settings typical in most public schools. Montessori education centers on the child with an individualized and self-directed approach to education which downplays the role of the teacher. Rather than textbooks for individual subjects, the holistic content of the Montessori curriculum is conveyed through a variety of hands-on materials (Lillard, 1996). Because of these unique features, further challenges are likely for Montessori public schools as they face more restrictions through "No Child Left Behind" (NCLB) requirements. Specifically, the legislation's emphasis on standardized testing

stands in direct contrast to Montessori philosophy which traditionally downplays competition and deemphasizes grading and testing students. The individualized pacing in Montessori education makes aligning with testing content a challenge. Standards for teacher qualifications under NCLB have the potential to impact public Montessori schools as well. Finding teachers with both Montessori certification and state licenses has traditionally been a challenge for public Montessori schools, but NCLB is likely to exacerbate the problem because Montessori certification has not been accepted by most states as designating teachers as "highly qualified."

Since principals and others in leadership roles in public Montessori elementary schools serve as the liaisons between Montessori programs within schools and district administration, these individuals were the focus of this study. The study had three primary objectives. First, to address the lack of data currently available, the study described the current enrollment characteristics and Montessori practices of public Montessori elementary schools. Second, because of the challenges of aligning the unique characteristics of Montessori elementary education with traditional standards, this study gauged the concern of public Montessori elementary school leaders regarding the potential impact of NCLB. Finally, because of the lack of emphasis on testing practices in Montessori teacher and administrator certification programs, this study explored whether differences exist between school leaders with Montessori certification and those without regarding attitudes toward standardized testing. The literature review that follows provides further details about Montessori elementary education as well as the potential impact of NCLB.

Chapter 2: Review of Literature

Montessori Method

The Montessori philosophy of education was originated by Maria Montessori (1870-1952), Italy's first female physician (Hainstock, 1997). The initial elements of her theory were developed while working with mentally challenged children and children of poverty in Italy. She integrated close observation of children's behavior with her scientific knowledge of children's growth and development to create a framework for an educational approach that would lead all children to become self-motivated, independent and life-long learners (American Montessori Society, n.d.b). In describing her "method," Montessori said:

> There was no method to be seen, what was seen was a child. A child's soul freed from impediments was seen acting according to its own nature. The characteristics of childhood which we isolated belong quite simply to the life of a child…They are not at all the product of an 'educational method.' It should, however, be obvious that education can have an influence upon these natural qualities by protecting them and nurturing them in a way that will assist their natural development (Montessori, 1966, p. 136).

Montessori was viewed as quite radical in her day, postulating that children learn through hands-on activity and that critical brain development occurs during the preschool years. These once groundbreaking ideas are now widely accepted educational principles (Shute, 2002). Her ideas incorporated Jean-Jacques Rousseau's perspective on the nobility of the child with a belief in the inherent value of work (Shute, 2002). Another one of the building blocks of Montessori's philosophy was,

"that human development does not occur in steady, linear ascent but in a series of

formative planes" (Lillard, 1996). These stages were broken down as follows:

    1) Birth to 6 years
    2) 6 to 12 years
    3) 12 to 18 years
    4) 18 to 24 years

This study focuses on the second plane, traditionally thought of as the elementary

years. In this stage of development, Montessori believed children have a limitless

intellectual curiosity directed specifically at the formation of their own minds. She

called this stage the "Intellectual Period" (Chattin-McNichols, 1998, p. 97).

Based on Montessori's philosophy, many aspects of the Montessori

elementary classroom are unique relative to settings typical in most public schools.

First, Montessori education is an individualized approach with a long-term

perspective. Children remain with the same teacher in multi-age classrooms for three

years, allowing for tremendous continuity in the learning experience. In this

environment, children work at their own pace with many opportunities for

cooperative learning while working in small, mixed age groupings according to

ability and interest (Charlap, 1999). Montessori elementary children spend the

majority of their time in self-directed learning at an individualized pace. Teachers

gauge understanding by the way materials are handled, accuracy of written work,

ability to transfer concepts to new situations and demonstrating mastery through one

child teaching a concept to another (Charlap, 1999). Montessori considered children

who had developed self-discipline and internal motivation through Montessori

preschool experience to be "normalized" (Montessori, 1966, p. 214). This state of normalization is necessary for the self-directed work environment in a Montessori classroom. Montessori believed that children have a natural aptitude and "vital instinct" for meaningful work (Montessori, 1966, p. 148). She believed that a child "prefers a disciplined task to futile idleness" and that in fact a child will suffer from the "normal lines of construction" if he is in an environment without opportunities to exercise the desire for work (Montessori, 1966, p. 208).

Second, the Montessori Method relies on a vast array of hands-on materials rather than textbooks or worksheets to convey academic content. The materials facilitate the individualized approach to learning because they are "the means to personal formation for each child" (Lillard, 1996, p. 57). Montessori materials are not simply visual aids used for demonstrating concepts. Instead, the child's learning takes form through his repeated, individual use of the materials (Lillard, 1996). Montessorians believe that children are very limited in their ability to think abstractly during the elementary years. Thus, concrete materials allow the children to create an inner picture of complex concepts which will serve them for a lifetime. Montessori experts have described the concept of abstraction in mathematics as "a creative process undertaken by the child to construct her own knowledge" (Chattin-McNichols, 1998, p. 97). While some of the Montessori math materials resemble manipulatives used in other classroom situations, their prominence and individual use are unique in a Montessori classroom. In addition, these hands-on materials are not

limited to the math curriculum but are employed across subject areas, from grammar to science and geography (Lillard, 1996).

Third, the teacher's role in a Montessori classroom differs from that in a traditional classroom. Montessori children at all levels learn through their interaction with the environment, of which the teacher is only one part. Peers, materials, the outdoors and even real-world excursions are also critical elements of the "prepared environment" (Lillard, 1996, p.77). The arrangement of a Montessori elementary classroom illustrates the reduced emphasis of the teacher as the focal point. There is typically no desk at the head of the classroom, the teacher is most often found in some corner of the room surrounded by a small group of students discussing their work or giving a lesson. Even the term "teacher" is avoided in some Montessori schools in favor of the term "guide" to emphasize the child's role in his own learning (Chattin-McNichols, 1998, p. 56-58).

Finally, the Montessori elementary curriculum is holistic in nature. Montessori believed that once achieving self-direction, children work best when provided uninterrupted three hour work cycles (Lillard, 1996). During this time, children pursue activities of their choosing from any of the academic areas such as language, math, geography, science, history and social studies. In fact so much integration exists across these disciplines that children often engage in multiple academic disciplines simultaneously and unconsciously. For example, a child may write a report about the historical discoveries of the parts of an atom or create a chart depicting the products of Costa Rica based on its climate and geography. An

important unifying element in a Montessori elementary classroom is what is called

the "Great Lessons" (Lillard, 1996, p. 59). Montessori believed that the intellectual

growth of children in the second plane made it "necessary to make use of the

psychological state which permits the view of things in their entirety and to let them

note that everything in the universe is interrelated" (Lillard, 1996, p. 59). The Great

Lessons consist of five impressionistic stories that dramatize the interrelationships

within the universe. These lessons present stories on the "creation of earth, the

beginning of life, the coming of human beings, and the tools of human

communication, that is, language and mathematics" (Lillard, 1996, p. 58). Teachers

employ a dramatic manner, simple experiments and their own creativity in telling

these stories in a way that piques the children's interest. For example, the first Great

Lesson, often called "The Creation of the Universe and Coming into Being of Earth,"

begins with the teacher telling children,

> In the beginning it was very, very dark, darker than they could ever imagine
> and that it was so cold, much colder than they had ever been. It seemed as if
> there was nothing there at all in this very dark, very cold space that was
> everywhere. But eventually there was something… (Lillard, 1996, 60)

The story continues with the formation of the elements, fire, water and air, volcanoes,

formation of mountains and the atmosphere condensing into rain, creating oceans,

lakes and rivers. The interrelatedness of the universe is a key message of these stories.

Rather than isolated bits of knowledge, children use the universe as context for their

learning which sparks their imagination and leads to them to ask questions and seek

answers establishing a foundation for a lifelong love of learning (Lillard, 1996).

Despite the many non-traditional aspects of Montessori education, many public

Montessori elementary schools exist today as options within school choice programs.

The two most prominent U.S. Montessori organizations, Association

Montessori Internationale (AMI) and American Montessori Society (AMS) have both

outlined their commitment to promoting the growth of Montessori education in public

schools. AMI was founded by Maria Montessori herself in 1929 and maintained after

her death by her son, Mario Montessori. The organization is very active today

throughout the world with a branch office in the United States (Association

Montessori Internationale, n.d.a). AMS was founded in 1960 and currently has over

10,000 members (American Montessori Society, n.d.c). Both organizations have

active teacher training programs and public education initiatives which support

Montessori education as an option for school choice.

School Choice

Over the last 10 years, states and school districts have been expanding

opportunities for parents to use public funds to choose the schools their children

attend. A broad array of school choice program types exist, including: magnet

schools, open enrollment, charter schools, vouchers, and tax credits and deductions.

Magnet schools and charter schools are the most common types of school choice

programs for Montessori education (Kahn, 1990). Magnet schools typically offer

some type of specialization (e.g., Montessori education, foreign language immersion,

or technology) to attract students from across a given district as well from as other

districts. Federal court-ordered desegregation plans were being created in the early

1970's to reduce segregation in inner cities. In response to the failure of busing, magnet schools were created to attract children to desegregation schools (Kahn, 1990). Today, magnet schools continue to strive for racial balance. In fact, admission criteria are often in place to ensure racial balance is maintained. The federal government received reports for the 1999-2000 school year indicating 1,372 magnet schools operated in 17 states (Education Commission of the States, 2005).

Charter schools operate as essentially deregulated public schools, using public funds to support programs founded by parents, educators, community groups or private organizations. These groups often pursue charter schools to focus on a unique educational vision (e.g., Montessori), gain autonomy from local districts or to serve a special population (e.g., children at risk of expulsion) (WestEd, 2005b). The earliest mention of the term "charter school" can be traced back to the 1970s when a New England educator suggested that new educational approaches could be explored through contracts given to small groups of teachers. The idea was publicized in the late 1980s when a former president of the American Federation of Teachers suggested that local school boards could "charter" a school with union and teacher approval WestEd, 2005a). Philadelphia dubbed their schools within schools initiative in the late 1980s "charter schools" (WestEd, 2005a). In 1991, Minnesota passed the first charter school law developing a program to provide opportunity, choice, and responsibility for results. The following year, California followed suit (WestEd, 2005a). Today, charter school legislation exists in 40 states and the District of Columbia. In 2004-2005, 3,343 charter schools existed with another 236 slated to

open in 2005 or 2006. California and Arizona have the largest number of charter

schools, each with over 500 in operation. It is estimated that 800,000 students are

enrolled in charter schools today (WestEd, 2005a).

In 2003, the National Center for Education Statistics released a study on

"Trends in the Use of School Choice 1993-1999" (Bielick, 2003). The study found

that the proportion of children attending their assigned public elementary and

secondary schools decreased from 80 percent in 1993 to 76 percent in 1999. This shift

was primarily a result of the corresponding increase from 11 to 14 percent in public,

chosen school enrollment. Furthermore, the trend away from assigned public schools

was most dramatic among low-income households (under $10,000) in which the drop

was 84 percent to 74 percent. Results were relatively steady for households with

incomes over $75,000 (Bielick, 2003). These data suggest that higher income families

likely had the means to choose alternatives to public schools even before school

choice programs were instituted. For lower income families, however, provision of

public funds makes it possible for them to seek alternatives to their local public

schools as well.

Montessori in Public Schools

Montessori has grown as a choice in public schools in the United States due to

pressure from parents and taxpayers for more choice, better quality and efficiency

(Hainstock, 1997). The first Montessori public school was established in greater

Cincinnati in 1967. Hilltop Elementary's Montessori program remains in operation

today (Gordon, 2005). In the 1980s, Montessori magnet schools experienced a five-

fold increase in numbers (Kahn, 1990). In 1993, it was reported that 29 of the 100

largest U.S. school systems offered Montessori programs (MPSC, 1993b). The

American Montessori Society (AMS) estimates 325 Montessori programs in charter

and public schools today (American Montessori Society, n.d.b). Anecdotal reports

suggest that Montessori magnet schools receive enthusiastic parental support and

have long waiting lists being unable to accommodate all the children wishing to

attend (Lillard, 1996).

A small number of studies have been conducted in the last 25 years to

characterize public schools offering Montessori education. Chattin-McNichols (1983)

conducted a study from 25 of the 50 school districts in the U.S. known to have

Montessori programs in 1981. However, a more recent study was conducted in 1989

by the North American Montessori Teachers' Association in conjunction with

Cleveland State University. Key findings from the study were reported in an issue of

the Montessori Public Schools Consortium newsletter, but the full study results were

unavailable from the organization (1993a). Results from the survey of 45 districts

operating 75 public schools estimated that Montessori education was being provided

to 14,000 students. Almost all districts offered Montessori preschools and three-

fourths used multi-age groupings. Two-thirds of the districts required teachers to have

certification from one of the two most prominent national Montessori organizations,

Association Montessori Internationale or American Montessori Society. The largest

proportion (38%) operated on a basis of first come, first served admissions, with

roughly one-fourth using a lottery (29%) or selective screening (24%) (MPSC,

1993a). In a research compendium which included highlights from the study, one of

the authors reported 58% had no Montessori trained individuals in principal or

coordinator positions and 38% indicated either random multi-age groupings or no

multi-age groupings. Almost three-fourths (72%) reported no curricular autonomy

from their districts and a fifth (20%) reported concern about the quality of Montessori

teacher credentials. Two-thirds (68%) indicated starting children later than age three

(Boehnlein, 1988).

Another study examining Montessori education was conducted in 1990-91 in

conjunction with the Rockford Public School District (Chattin-McNichols, 1992).

Like the previous study, the complete set of results was unavailable either through the

school or the Montessori Public School Consortium. Highlights from the study were

reported suggesting that parent demand, desegregation initiatives, Montessori

teachers and administrator initiative play a substantial role in Montessori availability

in public schools. The study reported that 30 of 63 public Montessori schools

surveyed maintained waiting lists due to demand for this type of program. One-fourth

of the schools' waiting lists exceeded 200 children. Although Montessori programs

do not emphasize testing, many schools do participate in standardized assessment

programs. As a result, the study also reported a wide variety of standardized testing

programs used. The California Achievement Test (14 of 63 schools) and the Iowa

Test of Basic Skills (14 of 63 schools) were most commonly used (MPSC, 1993a).

The Rockford study's authors suggested that one common instrument or reporting

method would facilitate collection of achievement data on a national level (MPSC, 1993a).

Montessori and NCLB

Montessori has grown as a program option in public schools despite the challenges of fitting its unique features into mainstream requirements. Even so, the "No Child Left Behind Act of 2001" is likely to increase the challenges faced by Montessori schools in the public sector. This act has four primary components: accountability for results, expanded local control, and reform based on scientific research, and expanded parental options (USDE, n.d.a). Under the umbrella of accountability, states are required to publish report cards providing the results of annual testing programs administered to every child, every year as well as the qualification status of their teachers (USDE, n.d.a). Because of its unique teacher training programs and de-emphasis of traditional testing, these accountability requirements may have particular impact on Montessori schools. Expanded local control under NCLB is designed to cut down on bureaucracy and allow state and local governments more flexibility in spending their federal education funds (USDE, n.d.b). The impact of local control on Montessori programs is unclear and will likely vary from state to state. NCLB's focus on scientific research results in funding targeted specifically for educational programs and practices which are based on rigorous empirical evidence (USDE, n.d.b). The limited research currently available regarding the effectiveness of Montessori education could result in limited funding for expanding such programs. Finally, NCLB includes provisions to expand parental

choice allowing children to transfer out of poorly performing schools and

restructuring schools that fail to improve over time (USDE, n.d.b). Increased

emphasis on parental choice and school restructuring could create new avenues for

Montessori programs in public schools. The challenges posed by accountability for

results and teacher qualifications as well as potential opportunities created under

NCLB will be explored in more detail in the following sections.

Adequate yearly progress. As part of the sweeping overhaul of federal

involvement in primary and secondary education, NCLB has established the goal of

every child meeting state-defined education standards by the end of the 2013-14

school year. Toward that end, states are required to develop benchmarks to measure

academic "adequate yearly progress (AYP)" for its students overall and in

disadvantaged subgroups such as racial minorities and low income families (USDE,

2004). The benchmarks are calculated from a starting point of the lowest achieving

demographic subgroup or the lowest achieving schools in the state, whichever is

higher. Based on this starting point and the ultimate goal of all students achieving

proficiency by 2014, the state sets thresholds in reading and language arts, math and

science assessments and must increase at least once every three years. Schools will be

considered "in need of improvement" if they fail to meet AYP as defined by the state

school-wide or in any subgroup for two consecutive years. Beginning in 2005-06,

each state must assess every public school student's achievement in reading and math

every year in grades 3 through 8 and at least once during grades 10 through 12.

Science assessments will be added in 2007-08. These assessments must be designed

to align with each state's academic content and achievement standards. The results of these assessments will be communicated in detailed report cards on schools and districts broken down by race, ethnicity, gender, English language proficiency, migrant status, disability status and low-income status (USDE, 2004).

Parents have the opportunity to transfer children to higher-performing public schools within the district in the first year a school is designated "in need of improvement." Within certain cost limits, transportation must be provided for students wishing to transfer to a new school. The stakes of these assessments are extremely high and consequences increase in severity for each subsequent year a school fails to meet AYP:

- Second Year: The school creates a two-year turnaround plan and the district ensures the school receives necessary technical assistance with implementation. Students have the option of transferring to another public school in the district not designated as needing improvement.

- Third Year: Steps from second year remain in place and students from low-income families may receive supplemental educational services (tutoring, remedial classes, etc) from a parent selected and state approved provider.

- Fourth Year: The district must implement corrective actions, such as replacing staff or implementing a new curriculum. Students continue to have the option of school choice and supplemental services.

- Fifth Year: The district must initiate restructuring plans, including actions such as reopening the school as a charter school, replacing all or most of the staff, or turning over operation of the school to the state or private company with a record of effectiveness. (USDE, 2004)

The assessment aspects of NCLB are widely expected to create challenges for Montessori schools which have historically downplayed competition and have eschewed traditional grading and testing programs (Anderson, 2005a). The concern is

that high-stakes testing will force public Montessori schools away from the child-directed approach fundamental to Montessori education. Montessori schools already report spending weeks each year away from Montessori lessons and self-directed work in order to prepare for tests. One program in Milwaukee faces this challenge despite its popularity and strong district support. Milwaukee coordinators are confident their students will meet the academic standards. They have performed well on standardized assessments in the past and the district has already demonstrated that the Montessori curriculum aligns with Milwaukee's content goals (Anderson, 2005a). Prince George's County, Maryland has another long-successful Montessori program within a district struggling to meet AYP requirements. Even though all the Montessori schools in the district have met AYP for the racial and economic subgroups and students have scored above the district average, they are being required to participate in additional interim testing from which they had previously been exempted (Anderson, 2005a).

Two aspects of Montessori elementary education combine to create potential challenges for student performance on standardized assessments used to ascertain AYP: limited test-taking experience and individualized pace of content coverage. First, many Montessori children have less experience with taking tests than children in traditional environments. Montessori herself criticized examinations such as "Binet-Simon" (Binet & Simon, 1911) because such instruments cannot separate the "intrinsic activity of the individual" from the "action of the environment" (Montessori, 1965, p.111). Montessori believed testing was one-dimensional and

could not truly separate a child's inherent abilities from environmental and

experiential factors (Montessori, 1965). She envisioned individuals' moving from one

stage of independence to the next through his/her own effort and will. She saw an

inner evolution of the individual rather than a child taking tests and proceeding from

one grade another (Montessori, 1973). To understand a child's progress she supported

"prolonged observation" (Montessori, 1965, pp. 14). As a result, Montessorians

generally prefer alternative methods for assessing student progress. Rather than

grades and testing for student evaluation, Montessori teachers have traditionally

relied on materials of graduated difficulty in conjunction with detailed teacher

observation and recordkeeping (Kripalani, 1990). Each individual child's progress is

tracked by teachers who follow the child for three years (Lillard, 1996). Montessori

materials themselves have a natural progression for children to master and a built-in

control of error (Kripalani, 1990). Furthermore, Montessori teachers typically avoid

asking their own questions of the children. They instead plant the seeds within the

children to ask their own questions which yield greater commitment to seeking

answers which are meaningful to them (Lillard, 1996). For example, instead of

lecturing about the differences between succulent and dry fruits, a teacher might

describe succulent fruits and allude to the existence of dry fruits. Her hint would

pique the child's curiosity for further research on the distinction between the two

types of fruits. As a result, children are not restricted by what adults deem important.

They are instead aroused by their own interests and freed from the cycle of teach,

learn, test (Lillard, 1996). Clearly, this approach provides fewer opportunities for

children to practice test-taking skills compared to children in more traditional environments.

Second, Montessori children do not all cover academic content at the same pace because of the individualized nature of the curriculum. As previously discussed, Montessori is an integrated educational approach where children do not study subjects in isolation from one another. The philosophy acknowledges that children desire a grasp of the whole of knowledge rather than fragmented bits of isolated of information to be memorized for a test (Lillard, 1996). Such an approach results in children covering content that does not coincide with state standards at each grade level. Furthermore, Montessori professionals suggest that the current focus on school and teacher accountability loses sight of the role of children as essential to the process of education and sharing the responsibility for their own success (Kripalani, 1990).

Not surprisingly, disagreement exists in the Montessori community regarding the appropriateness of participating in standardized testing programs. Many Montessori schools reportedly began to administer standardized tests in the early 1990s (Lillard, 1996). The Montessori Public School Consortium (MPSC) in 1993(a) reported that 98 percent of Montessori elementary schools in the private sector participate in standardized tests. The organization suggested that such instruments "run totally counter to Montessori pedagogy" (MPSC, 1993a). However, the North American Montessori Teachers' Association reported that the "vast majority of Montessori schools with elementary programs, public and private, use standardized tests, which offer minimal disruption of Montessori classroom activity" (NAMTA,

n.d.). Thus, even before the stakes were raised through the new NCLB legislation, many Montessorians were recognizing that they must participate in assessment efforts. They caution that the tests may not be an accurate reflection of the children's progress, but they urge teaching of the thinking processes that objective testing requires so that Montessori children are not at a disadvantage (Kripalani, 1990).

The limited amount of available research suggests that many Montessori schools successfully demonstrate high academic achievement. One study by Duax indicated that 85 percent of students in a Milwaukee Magnet school scored above the 50th percentile on the Iowa Tests of Basic Skills (Dohrmann, 2003). In another study, he found that Montessori students' scores on the Stanford Achievement Test improved every year on the full battery from second through eighth grade, increasing from 79th to 88th percentile in reading comprehension and 77th to the 88th in math (Dohrmann, 2003).

Individual state recognition has also been awarded to many public Montessori schools. Denver's Denison Montessori School serves a large number of poor and minority children and was named as one of the top 20 performing schools in Colorado by the Education Trust by performing in the upper third of test scores of all schools in the state (Dohrmann, 2003). All four Cincinnati Montessori magnet schools were identified as "Best Practice" schools based on low suspension rates, safe and disciplined environments and success in promoting student achievement while keeping costs down (Dohrmann, 2003). Sedona Montessori Charter School has been ranked as one of the best performing schools in Arizona, consistently outperforming

other schools in the state on Stanford 9 tests (Dohrmann, 2003). These results,

however, are far from conclusive because of the challenges of controlling for

preexisting differences among students. Studies to date have failed to control for the

influence of parental choice in evaluating public Montessori outcomes (Dohrmann,

2003).

As public Montessori schools strive to demonstrate success through traditional

vehicles, many take steps to ensure that their students are not at a disadvantage

because of their educational experience. At the same time, these efforts require a

delicate balance to ensure that the child-directed approach of Montessori education is

not jeopardized due to state and district pressures.

Highly qualified teachers. Another provision of NCLB outlines minimum

qualifications for teachers: a bachelor's degree, full state certification and

demonstration of subject-matter competency for each subject taught. These

requirements apply to all public school teachers, including those in charter schools

unless the state charter school laws specify that it is not required. States must develop

plans to meet the goal that all teachers of core academic subjects are highly qualified

by the end of the 2005-06 school year. Progress on annual, measurable progress

toward this goal will be included in school report cards. The federal law requires

teachers to possess bachelor's degrees, but each state has the opportunity to develop

its own standards for certification and competency as long as they are consistent with

federal requirements. NCLB does not require separate degrees or separate

certification for each subject taught. Even though states have substantial latitude in

creating mechanisms for teachers to demonstrate subject-matter competency, new

elementary teachers must pass a rigorous state test covering subject knowledge and

teaching skills in reading and language arts, writing, math and other areas of the basic

elementary school curriculum (USDE, 2004). NCLB allows states to create a system

for experienced teachers to demonstrate competency based on a high, objective,

uniform state standard of evaluation (HOUSSE). Many states implement HOUSSE

using a point system allowing teachers to receive credit for years of experience,

professional development, and participation in curriculum development teams among

other content-area activities. NCLB requires only new teachers to take a test to

determine highly qualified status and allows states to determine subject matter testing

requirements for their experienced teachers. The law also requires paraprofessionals

to meet minimum standards including an associate degree, two years of college or

passing a state assessment (USDE, 2004).

These NCLB requirements for "Highly Qualified Teachers" could contribute

to an already significant problem of Montessori teacher recruitment (Anderson,

2004). Although each state has the responsibility for defining what HQT means, these

requirements have often led to further difficulties for Montessori graduates seeking

state licenses without first obtaining traditional teacher credentials (Anderson,

2005a). In 1992, finding qualified teachers was cited as one of the greatest challenges

for public Montessori schools (Chattin-McNichols, 1992). The scarcity of teachers

then and now is due primarily to the fact that Montessori teachers in public programs

must have both state teacher certification and Montessori elementary school teacher

training (Chattin-McNichols, 1992). Although Montessori teacher training programs and traditional teacher education programs include similar content on child development and learning, most states do not credit Montessori teacher certification programs toward their licensing requirements. As a result, state licensed teachers in public schools must complete Montessori training after finishing their undergraduate degrees. Or, certified Montessori teachers who wish to teach in public schools must take additional college coursework beyond their undergraduate degrees to fulfill their state's requirements for licensure. In the past, this challenge has led some teachers to work in Montessori programs without the combination of state licenses and Montessori certification (Chattin-McNichols, 1992). The consequences of NCLB make it unlikely that requirements for state certification will be relaxed.

Colorado is a case in point. A handful of educators were unsuccessful at expanding opportunities for Montessori trained teachers through local deliberations about HQT standards. Inspired by NCLB, the Colorado legislature is reticent to show any flexibility to non-traditional programs. Exacerbating the situation, Colorado closed an alternative program that had licensed Montessori-trained teachers for almost a decade. These setbacks are a major concern for the Denver district's three growing Montessori programs (Anderson, 2004).

The Montessori Accreditation Council on Teacher Education (MACTE) Commission is working on a state-by-state and national basis to support efforts to gain recognition for Montessori credentials. The MACTE Commission is an accrediting agency recognized by the U.S. Department of Education through the year

2008 and has established standards, criteria and competencies that meet federal guidelines. The Commission's Two-Year Strategic Plan outlines plans to, "Develop a general campaign targeting state governments and presenting accreditation by the MACTE Commission as an alternative to state certification" (Anderson, 2004).

A small number of states have been receptive, but progress is slow. Recently, Connecticut recognized Montessori teacher education as a major step toward meeting the state's licensing requirements. The new rules dramatically reduce the burden for AMI certified teachers by requiring a bachelor's degree in any discipline, a competency assessment and only four additional education classes beyond Montessori training. Prior rules forced many candidates to return to school for what was almost the equivalent of an additional degree (Anderson, 2005b).

Milwaukee Public Schools and its Montessori administrators are using an alternative teacher training program to facilitate Wisconsin licensure for trained Montessori teachers (Anderson, 2005a). The Milwaukee Teacher Education Center prepares hundreds of K-8 and bilingual teachers, not just Montessori teachers, specifically for Milwaukee Public Schools. The center is a collaborative effort of Milwaukee Public Schools, the Milwaukee Teachers Education Association, University of Wisconsin-Milwaukee, UW Extension and area business leaders. AMS and AMI certified teachers have been accepted into the program for three years. The rigorous, year-long program has already graduated a dozen Milwaukee Montessori teachers (Anderson, 2005a). The ultimate effect of HQT on Montessori teacher

recruitment remains unclear, but some efforts at creating dialogue linking Montessori qualifications to state criteria are beginning to show results.

Emerging opportunities. The impact of NCLB may not be completely negative for public Montessori schools. The legislation could contribute to expansion of Montessori programs through its designation of funds to be used locally for innovative programs including "activities to promote, implement, or expand public school choice" (No Child Left Behind Act of 2002). The requirement is that these programs be tied to improving academic achievement. NCLB created the Voluntary Public School Choice program to support states and school districts in establishing or expanding public school choice. The Department of Education awards grants on a competitive basis to applicants for planning and designing public school choice programs, making tuition transfer payments to public schools students choose to attend, enhancing capacity-building activities in high-demand schools (except construction), informing parents and the public of public school choice opportunities, and covering other necessary costs (USDE, n.d.c). Charter schools have already created new opportunities for the creation of Montessori schools in the public sector. In fact, the first charter school in the United States was a Montessori school in Minnesota (Lillard, 1996). Clearly, educational choice has the potential to expand opportunities for a Montessori education to many more children than ever before.

Other areas may also lead to new opportunities for public Montessori programs. As requirements for highly qualified teachers go into effect and states contend with teacher shortages, they may consider evaluating alternative training

programs rather than forcing experienced teachers back to college (Anderson, 2005b).

NCLB allows states the freedom to create alternate routes to certification. Montessori

teachers could benefit from any newly created alternative licensure programs. These

programs allow candidates to teach while they are in process of meeting state

certification requirements along with mentoring and professional development

support (USDE, 2004). In addition, states could adopt a system supported by the

American Board for Certification of Teacher Excellence (ABCTE). If states create

such an alternative certification system, teachers could demonstrate competency

through a multi-dimensional assessment. Those who pass the assessment would then

be considered fully certified by the state without specific education coursework

(USDE, 2004).

Similarly, while the testing requirements of NCLB create challenges for

public Montessori schools, opportunities may emerge as a consequence in this area as

well. When schools fail to meet AYP and are reconstituted, conversion to Montessori

magnet programs would restart the AYP calendar. Such was the case for a middle

school in Fort Wayne, Indiana. The superintendent has tentatively recommended that

the school reopen as a Montessori magnet school (Jola Montessori, 2005). As the

program coordinator at Fernwood Montessori in Milwaukee stated, "Public

[Montessori] school teachers are adept at taking what comes our way and making it

work" (Anderson, 2004).

Public Montessori elementary schools are in a unique position today: striving

to achieve a child-centered Montessori environment fostering freedom with

responsibility while simultaneously addressing the demands of state and federal requirements devised around more traditional educational settings. This study describes the way schools are operating on both fronts. On the one hand, this study measures the degree to which schools report they are living up to the ideals of establishing truly Montessori environments within public schools. The study reports on many of the characteristics identified by the American Montessori Society and Association Montessori Internationale as essential in the success of Montessori schools in the public sector. On the other hand, this study also gauges public Montessori elementary school leaders' perceptions of the effects of NCLB requirements on school functioning. The impact is evaluated based on the reported impact of NCLB challenges relative to other threats to their schools' long-term success. The areas to be explored include the impact of NCLB relative to parent, teacher, school, community, district and state issues and budget cuts. Furthermore, the study outlines the areas in which respondents perceive a need for additional research to support them in addressing these challenges. The areas in need of additional information will guide the investigator in the identification of research questions to be pursued in future research. A final area explored in this study is a comparison of respondents with and without a Montessori background regarding their attitudes toward testing. Based on the lack of emphasis on testing in Montessori teacher and administrator certification programs, one might expect school leaders who are Montessori certified to be more negative toward district requirements for standardized testing. In sum, this study answers three research questions: (1) What are the current

Montessori practices in public Montessori elementary schools? (2) How concerned

are leaders in public Montessori elementary schools regarding the potential impact of

NCLB? and (3) Do differences exist between school leaders with Montessori

certification and those without regarding attitudes toward standardized testing?

Chapter 3: Methods

An online survey methodology was utilized to gather information from public

Montessori elementary school leaders. Respondents reported their schools'

Montessori practices and their perceptions of the potential impact of NCLB on their

schools. Data collection was conducted from April 24, 2005 through June 1, 2005.

SurveyZ's web based commercial online survey design and execution software was

used for this project (Qualtrics, n.d.). Characteristics of participants and details of the

instrument and procedures are outlined below.

Participants

Approval was obtained for this study from the human subjects committee of

the University of Kansas. No unusual or extreme hardship was experienced by

participants in this study. The only requirement of respondents was the time

necessary for the initial telephone call and for responding to the online survey

regarding issues faced by their schools. In exchange for participation in the study,

respondents were offered a summary of the results to help each individual understand

how his/her school was similar or different from other public Montessori elementary

schools across the country.

The 85 participants in this study represent one-third (32.3%) of the public

Montessori elementary schools in the United States contained in a comprehensive

listing compiled by Jola Publications and Montessori Connections (Jola Publications

& IntelleQuest Education Company, 2005). By contacting all 285 public schools on

the list, 261 public Montessori elementary schools with valid telephone numbers were

identified (91.6% of the list). The initial telephone call was an introduction to the

nature of the study, an invitation to participate in the study and a request for an e-mail

address for providing the link to the online survey instrument. E-mail addresses were

obtained for individuals in leadership roles in 180 of the 261 originally contacted

schools (69.0%). Repeated attempts to reach individuals in leadership roles at the

remaining 81 schools to obtain e-mail addresses were unsuccessful. The investigator

initially contacted school principals who represented the majority of participants

(64.4%), but principals sometimes referred other individuals within the Montessori

program as more appropriate to respond. Almost half of those who received study

invitation e-mails participated for a response rate of 47.2% (85 respondents out of 180

e-mail invitations sent). Providing evidence of representativeness, Table 1 shows the

similarity between the sample and population in terms of regional composition.

Table 1: Population and Sample Composition by Region

	Number of schools with valid phone numbers	Proportion of Sample	Completed Surveys	Proportion of Completed Surveys
Southeast	77	29.5%	24	28.2%
Plains States	67	25.7%	19	22.4%
Midwest	61	23.4%	22	25.9%
Northwest	41	15.7%	16	18.8%
Northeast	15	5.7%	4	4.7%
	261	100%	85	100%

As illustrated in Table 2, most of the respondents were school principals. The "other" category included the titles of: Program Implementer, Facilitator or Coordinator, Director of Operations, Magnet Coordinator, Assistant Superintendent, Business or Central Office Administrator, and Manager of Teaching and Learning. This question had data missing for 12 respondents. Each survey question had a slightly different number of respondents due to the self-administered nature of the questionnaire and a technical problem encountered by a small number of respondents. A discussion of these issues is provided in the Limitations section.

Table 2: Frequencies and Percentages of Job Titles

Job titles	Frequency	Percentage
Principal	47	64.4
Vice Principal	2	2.7
Head Teacher	4	5.5
Director	9	12.3
Curriculum Coordinator	2	2.7
Other	9	12.3
Missing	12	N/A

The average tenure for these individuals as leaders in their respective schools was 5.9 years ($SD=6.21$, $N=64$), with a minimum of one year and a maximum of 31 years. Since the data were positively skewed, the median value of four years is a better measure describing how long respondents had been associated with their programs. On average, respondents had 11.9 years of experience in administrative roles, with a median of 9.0 years ($SD=8.93$, $N=67$).

Of these Montessori elementary school leaders, only two individuals reported having a Montessori Administrator credential, but 40.3% were pursuing ongoing

Montessori administrator or leadership training. Almost half (45.2%) had some type

of Montessori certification, with primary (30.1%) or lower elementary level (34.2%)

being most common. Only 15.1% had upper elementary certification, one individual

had toddler certification and no one had certification at the middle school or high

school levels. Even with a sizable proportion of certified individuals, only two of

these school leaders had been teachers in Montessori classrooms. In contrast, 37.0%

of participants had been teachers in non-Montessori classrooms, with an average

tenure of 11.2 years (SD=5.6, N=25). In terms of university degrees, most

respondents had a master's degree (67.1%) with another 11.0% reporting a doctoral

degree and 19.2% indicating a bachelor's degree.

Measures

A sample of the questionnaire is provided in Appendix A. Characteristics of

public Montessori elementary schools were primarily measured by questions with

categorical response options. Some questions, such as years of program existence and

enrollment, leant themselves to open-ended numerical responses. Many of the

characteristics measured were based on a subset of items from a list of "Essential

Elements of Successful Montessori Schools in the Public Sector" published by the

American Montessori Society (n.d.a). Many of these elements are consistent with

AMI's requirements for public schools to be "associated" with the organization

(Association Montessori Internationale, n.d.b). The full list from both organizations is

provided in the Appendices B and C. Items included in this study were:

- Montessori certified teachers (AMI requires AMI diploma)
- Ongoing Montessori consultation or professional support for teachers
- Montessori in-service activities for teachers
- One trained paraprofessional in each classroom
- Experienced Montessori teacher serving as curriculum coordinator
- Building principal with knowledge of Montessori principles
- Commitment to the core Montessori curriculum
- District administration support
- Preschool Montessori experience required for students
- Parent education programs to promote understanding of Montessori
- Full complement of Montessori materials in each classroom (AMI requires AMI approved materials)
- Classrooms compatible with prepared environment principles
- Uninterrupted work cycles of at least 90 minutes (AMI requires 3 hours daily)
- Specialty programs scheduled around the uninterrupted work periods
- Three year multi-age groupings for children
- Tracking student progress using authentic assessment tools such as observation, portfolio, performance assessment with rubric, etc.
- Participation in standardized testing in such a way that it does not compromise the character of the Montessori program

The variables used to identify perceived threats to the future of public

Montessori elementary schools included a series of possible areas of concern rated on

a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Items

included:

- Our school performs well on district standardized tests
- "No Child Left Behind" testing requirements pose a challenge for our school
- Standardized tests present an opportunity for our school to demonstrate success
- Standardized tests conflict with Montessori philosophy
- The Montessori approach fails to prepare children for the experience of standardized tests
- Our school provides test-taking lessons for children
- The "No Child Left Behind" requirement for "Highly Qualified Teachers" is a concern for our school
- Finding qualified teachers is difficult for our school

In order to gauge the magnitude of NCLB challenges relative to other concerns of public Montessori elementary school principals, they were asked to rate the issues on the list below on a scale of 1 (no concern) to 5 (major concern):

- Parent support
- Teacher issues
- Community support
- District support
- State requirements
- Federal requirements
- Budget cuts

In assessing areas in which these principals perceive a need for additional research, a 5-point Likert agreement scale was also used where 1 represented "not at all useful" and 5 was "extremely useful." The areas evaluated included the usefulness of the following types of information:

- Evaluating academic achievement in Montessori compared to other approaches
- Evaluating student attitudes in Montessori compared to other approaches
- Evaluating student behavior in Montessori compared to other approaches
- Addressing specific issues related to Montessori in public schools
- Identifying Montessori-appropriate assessment tools
- Assessing teacher attitudes toward assessment
- Understanding other Montessori schools' assessment strategies

Internal validity of the instrument was supported by careful questionnaire development. The questions were constructed to be simple and precise and to minimize the potential for leading or socially desirable responses. The Likert items were balanced to allow for treatment of the data in an interval manner. In addition, the instrument was examined by a panel of Montessori experts to ensure that the

questions were unambiguous and that the response options were mutually exclusive and collectively exhaustive.

Procedures

The instrument was self-administered via an online survey. A link to the survey was e-mailed to all principals who agreed to participate. Participants' individual responses were not anonymous although they did remain confidential. The survey was constructed using SurveyZ, a commercial online survey administration site (Qualtrics, n.d.). This site also provided survey delivery tools including unique identification numbers for each respondent and response tracking to allow for reminder e-mails during the data collection period.

Most items in the survey were factual in nature, gathering information describing the schools in the study. Information regarding participants' concerns and future research interests were more attitudinal and were measured using a Likert scale. Most of these items attempted to measure different aspects of the potential areas of concern or interest each using a single item. Attempting to measure a construct using a single item limited the ability to demonstrate reliability and thus construct validity. However, this approach was deemed appropriate given the descriptive nature of the study, the breadth of potential concerns and information needs to be covered, and respect for the time required for the respondent to complete the survey.

External validity was supported by extensive efforts to maximize the response rate to the survey. As with any survey research study, higher participation rates for

more interested individuals poses a threat to generalizability. To mitigate this

problem, each school was contacted at least three times to obtain the participation

from an individual in a leadership position. Respondents to the online survey were

tracked to allow for multiple reminder messages to be sent to non-responders during

the data collection process. The results should be generalizable to the universe of

public Montessori elementary principals to the extent that response bias was

minimized. A potential threat to external validity is the possibility that the list

obtained by Jola Publications was dated or incomplete. However, a revised list of

schools was published during data collection allowing for cross-referencing and

updating contact information.

Chapter 4: Results

The results of this descriptive study with public Montessori elementary school principals described schools on several dimensions. First, basic school characteristics were provided, including student demographics, admission criteria, enrollment and enrollment trends. Montessori practices and attitudes followed, outlining Montessori accreditation, teacher background, and curriculum structure. Next, testing practices and attitudes toward standardized testing were described. Finally, the results enumerated the greatest challenges these schools faced along with areas in which additional information would be most beneficial to school leaders. Univariate descriptive statistics and frequency distributions were used to analyze and interpret the data since this study is primarily descriptive in nature. Because of the self-administered nature of the online survey, varying amounts of missing data existed for each question. As a result, base sizes reported varied depending on the number of respondents answering each question. This issue is further discussed in the Limitations section.

School Characteristics

Most schools included programs for preschool children but not middle school children. The average age of the youngest child served in these 84 Montessori elementary schools was 3.9 years with the majority (69.0%) serving children under

the age of five (*SD*=3.3). The average oldest age served was 11.9 (*SD*=12.0) with over half (56.0%) having a maximum age of 11 or 12.

The number of children enrolled in each school varied dramatically as shown in Table 3, ranging from as few as 15 students to as many as 800 students. The average total enrollment was 216.3 (*SD*=160.4, *N*=84, median=185) while the average enrollment of elementary children was 166.9 (*SD*=124.2, *N*=81, median=120). Almost one-third of the schools (32.9%) reported having only elementary students enrolled (*N*=76).

Table 3: Descriptive Statistics for School Enrollment

	Mean	SD	N	Minimum	Maximum
Youngest age child enrolled	3.9	3.3	84	1	9
Oldest age child enrolled	11.9	12.0	84	8	17
Total children enrolled	216.3	160.4	84	15	800
Elementary children enrolled	166.9	124.2	81	15	561

Over one-third of the students in these schools participated in free or reduced lunch programs (*M*=35.4, *SD*=25.4, *N*=65). In fact, almost a third of schools (30.8%, *N*=65) reported the majority of their students participating in free or reduced lunch programs. As Table 4 demonstrates, ethnic composition varied a great deal among schools. On average, the largest proportion of students in these schools was White. However, the majority of students in one-third of the schools were children of Indian, Black, Hispanic or some other ethnic group (34.5%, *N*=58). This racial breakdown was based on 58 responses because some participants chose not to answer and

because the data were considered missing if the total reported by a school for all

categories did not sum to 100%.

Table 4: Descriptive Statistics for Ethnic Composition Across all Schools

	Mean Proportion	SD	N	Minimum Proportion	Maximum Proportion
White	59.1	29.6	58	0	100
Black or African American	24.1	29.8	58	0	96
Hispanic or Latino	9.9	14.8	58	0	65
Asian	3.7	6.0	58	0	35
American Indian	1.2	2.3	58	0	10
Other	2.0	4.2	58	0	26

Most schools (55.3%, $N=85$) reported that the number of children enrolled in

their Montessori programs was growing. Another sizable group (37.6%, $N=85$)

indicated their programs' enrollment was remaining stable, with a small number

(7.1%, $N=85$) admitting enrollment in their programs was on the decline. In addition,

more than three in four (78.8%, $N=85$) schools had a larger number of children

wishing to attend than they could accommodate. Only 7.1% of schools had unfilled

spaces in their programs after enrolling all children wishing to attend. Lotteries were

the most popular admission process, mentioned by more than half of schools (56.5%,

$N=85$). Some schools operated on a first-come, first-served basis (23.5%, $N=85$) or

used a combination of these criteria and others, including preferences for those with

prior Montessori experience, with siblings enrolled or who reside in the neighborhood

(15.3%, $N=85$). A small number used selective admission criteria like academic

standards, test scores or discipline record (4.7%, $N=85$).

Montessori Practices

Over half of these public Montessori schools (55.7%) reported no accreditation from any Montessori organization. Table 5 outlines the accrediting organizations mentioned. The organization that accredited the largest number of schools was the American Montessori Society (AMS) while roughly one in ten schools reported accreditation from AMI. The "other" category included schools in process of achieving accreditation from AMS and those who were affiliated with AMS rather than accredited by the organization. Affiliation is a type of membership within AMS which requires less stringent standards than accreditation (American Montessori Society, n.d.d).

Table 5: Montessori Organization Accreditation (*N*=79)

	Proportion
American Montessori Society (AMS)	29.1
Association Montessori Internationale (AMI)	11.4
Montessori Education Programs International (MEPI)	5.1
National Center for Montessori Education (NCME)	2.5
Other	13.9
None	55.7

NOTE: Multiple responses allowed

In terms of Montessori teacher certification, the largest number of schools (44.7%, *N*=85) had a policy to allow teachers to be enrolled in training if they did not yet have certification. Almost as many (43.5%, *N*=85) required teachers to have completed Montessori certification in the levels that they teach. A small proportion either allowed certification at any level (5.9%, *N*=85), did not require Montessori

training (3.5%, *N*=85), or had a preference but not a requirement for certification

(2.4%, *N*=85). Schools reported that the vast majority of lead teachers (81.5%, *N*=82)

had Montessori certification in levels that they taught. In fact, half (51.2%, *N*=82) of

schools reported that all of their teachers were Montessori certified. As outlined in

Table 6, almost nine in ten schools recognized teacher certification from AMI while

three-quarters acknowledged AMS certification. Other organizations were each

mentioned by half as many respondents as AMS or AMI. The "other" category

included: in-house training programs, any program accredited by the Montessori

Accreditation Council for Teacher Education (MACTE), and the North American

Progressive Montessori Teacher Training Center.

Table 6: Montessori Teacher Training Organizations (*N*=84)

	Proportion
Association Montessori Internationale (AMI)	88.1
American Montessori Society (AMS)	73.8
National Center for Montessori Education (NCME)	35.7
Montessori Education Programs International (MEPI)	25.0
Southwestern Montessori Training Center	16.7
Other	19.0

NOTE: Multiple responses allowed

The issue of state certification was more straightforward. Seven in ten schools

(70.6%, *N*=85) required state certification for teachers with a smaller proportion

allowing teachers to be working on state certification (12.9%, *N*=85). Only a few did

not require state certification (8.2%, *N*=85), allowed for alternative or emergency

certification (5.9%, *N*=85) or had some other policy such as allowing teachers to be

in the process of pursuing state certification (2.4%, *N*=85).

The American Montessori Society has published a list of "Essential Elements of Successful Montessori Schools in the Public Sector" (American Montessori Society, n.d.a). Many of these elements are consistent with AMI's requirements for public schools to be "associated" with the organization (AMI, n.d.b). The full lists from both organizations are provided in Appendices B and C. Throughout this study most of these elements were explored. A seven item checklist, provided in Table 7 below, covered a portion of these elements. School leaders reported a fairly high degree of adopting these practices. All schools reported having classrooms that were compatible with Montessori's "prepared environment" principles. Most also had parent education programs, three-year age groupings, ongoing Montessori professional support, and Montessori in-service training for teachers. Even the least prevalent practices, experienced Montessorians as curriculum coordinators and trained para-professionals, were evident in over half of the schools.

Table 7: Adoption of Montessori Practices

	Proportion	N
Classrooms compatible with Montessori's "prepared environment" principles	100.0	85
Parent education programs to promote understanding of Montessori	89.4	85
Three year multi-age groupings for children	84.7	85
Ongoing Montessori consultation or professional support for teachers	84.5	84
Montessori in-service training for teachers	78.6	84
Experienced Montessori teacher serving as curriculum coordinator	62.2	82
One trained paraprofessional in each classroom in addition to the lead teacher	61.9	84

Almost 80% of schools reported that each classroom had a full complement of Montessori materials (78.9% strongly agree, *N*=76). Although the majority of schools were committed to the core Montessori curriculum, as shown in Table 8, they did not necessarily implement elementary education according to the original vision of Maria Montessori.

Table 8: Commitment to Montessori Ideals

	% Strongly Agree (5)	N	Mean	SD
Our school offers a full complement of Montessori materials in each classroom	78.9	76	4.64	0.81
Our school is committed to the core Montessori curriculum	57.9	75	4.35	0.98
Our school implements elementary education according to the original vision of Maria Montessori	27.6	76	3.87	0.94

Scale: 1= Strongly Disagree to 5=Strongly Agree

Uninterrupted work cycles are a fundamental aspect of Montessori education with three-hour blocks considered ideal (American Montessori Society, n.d.a). Schools reported an average of 2.4 hours for the longest uninterrupted work cycle on a typical day at the elementary level (*M*=146.5 minutes, *SD*=43.5, *N*=84). Only three schools reported work cycles of less than 90 minutes. About a third (35.3%, *N*=84) had work cycles of two or two-and-a-half hours, while another third (33.3%, *N*=84) typically reported three-hours exactly. Interestingly, almost nine in ten (9.5%, *N*=84) had work periods even longer than three hours at the elementary level, some as long as four hours. One-third of respondents (32.9%, *N*=74) "strongly agreed" that

specialty programs like art and music were scheduled around these uninterrupted

work periods.

A well-functioning Montessori elementary classroom requires a core group of

children who are "normalized" to maintain an environment of child-directed activity.

An average of 68.5% of children in these schools had primary, or preschool,

Montessori experience in these elementary programs (*SD*=31.1, *N*=83). In fact,

59.0% (*N*=83) reported that at least three quarters of their students had primary, or
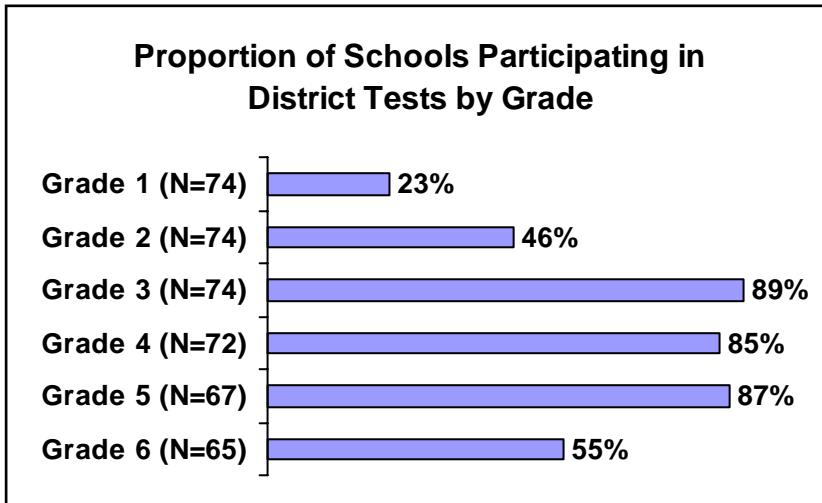
preschool, Montessori experience.

Testing Practices

The vast majority of schools participated in all of their district's regularly

scheduled standardized tests (89.2%, *N*=83). Another 8.4% participated in at least

some of the tests, while only 2.4% did not participate in any of them. For virtually all

schools (98.7%, *N*=76), participation in these tests was required rather than

voluntary. This participation did not appear to be a recent phenomenon for most

schools. Schools had been participating in their district tests for an average of 8.4

years (*SD*=6.0, *N*=68). While a quarter of schools (26.5%, *N*=68) had been

participating in district tests less than 5 years, half of them had been participating for

5 to 10 years (50.0%). Another 23.5% had been participating between 11 and 26

years.

Most schools who participated in their district's standardized tests did so in

the third through the fifth grade. Figure 1 outlines participation by grade for those

schools who participated in district testing and who had students enrolled in each

grade. Too few students were enrolled above sixth grade in these elementary schools for reporting beyond that level.

Figure 1: Proportion of Schools Participating in Tests by Grade

Proportion of Schools Participating in District Tests by Grade

Grade 1 (N=74) 23%
Grade 2 (N=74) 46%
Grade 3 (N=74) 89%
Grade 4 (N=72) 85%
Grade 5 (N=67) 87%
Grade 6 (N=65) 55%

Attitudes Toward Testing

Even though most respondents preferred tracking student progress using assessment tools other than tests, many reported their schools perform well on district standardized tests and did not believe their participation in standardized testing compromised the character of their Montessori programs (Table 9). A number of school leaders believed that standardized tests conflict with Montessori theory, but the opinion did not appear to be overwhelming. The "No Child Left Behind" testing requirements did create challenges for a portion of these schools despite the fact that such tests provided an opportunity for them to demonstrate success. Respondents did not believe that Montessori education fails to prepare students for the experience of taking standardized tests and some, in fact, provided test taking lessons for their children.

Table 9: Attitudes Toward Standardized Testing

	% Strongly Agree (5)	N	Mean (5-point scale)	SD
Our school prefers tracking student progress using assessment tools other than tests, such as observation, portfolio, performance assessment with rubric, etc.	55.3	76	4.25	1.07
Our school performs well on district standardized tests	37.3	69	4.10	0.95
"No Child Left Behind" testing requirements pose a challenge for our school	32.9	75	3.53	1.35
Standardized tests present an opportunity for our school to demonstrate success	30.3	75	3.73	1.13
Standardized tests conflict with Montessori philosophy	28.9	75	3.52	1.26
Our school provides test-taking lessons for children	26.3	75	3.72	1.10
The Montessori approach fails to prepare children for the experience of standardized tests	14.5	75	2.56	1.43
Our school is required to participate in standardized testing in such a way that it compromises the character of the Montessori program	13.2	75	2.89	1.21

Scale: 1= Strongly Disagree to 5=Strongly Agree

The only group comparison in this study involved examining the differences in attitudes based on principal background. Principals were categorized as either "Montessori background" or "Non-Montessori background" based on whether or not they had Montessori teacher or administrator certification. An average "testing support" score was calculated for each respondent from the survey questions regarding attitudes toward standardized testing. Scores ranged from 1.60 to 5.00 with higher scores reflecting more supportive attitudes toward standardized testing

(Cronbach's alpha=.71). The questions used to calculate the "testing support" average

score included:

1. Our school performs well on district standardized tests
2. "No Child Left Behind" testing requirements pose a challenge for our school (reverse scored)
3. Standardized tests present an opportunity for our school to demonstrate success
4. Standardized tests conflict with Montessori philosophy (reverse scored)
5. Our school is required to participate in standardized testing in such a way that it compromises the character of the Montessori program (reverse scored)
6. Our school prefers tracking student progress using assessment tools other than tests, such as observation, portfolio, performance assessment with rubric, etc. (reverse scored)

An independent-samples t test was conducted to evaluate the hypothesis that

school leaders with a stronger Montessori background (Montessori certification at any

level) would have less favorable attitudes toward standardized testing as compared to

those with a weaker Montessori background (without any Montessori certification).

The test was not significant, t (61)=.128, p=.899, suggesting that school leaders'

attitudes toward standardized testing was not different based on whether or not they

had Montessori certification. School leaders who were Montessori certified (M=3.22,

SD=.73, N=29) did not score significantly differently than those who were not

Montessori certified (M=3.25, SD=.91, N=34) on the composite measure of attitude

toward standardized testing.

Challenges and Information Needs

As Table 10 shows, concerns about budget cuts far outweighed any other

issues evaluated in this study. Almost half of respondents rated budget cuts as a

"major concern" compared to only around one-fourth rating the next most

problematic areas, federal or state requirements, as such. In contrast, parent and

community support were viewed with relatively little concern with almost two-thirds

rating them of low concern (64.9% and 64.4%, on 5-point scale, respectively).

Some of the specific budget issues mentioned included salaries for classroom

assistants (5 mentions, 7.0%, *N*=71) competitive teacher salaries (4 mentions, 5.6%,

N=71), and purchasing materials (4 mentions, 5.6%, *N*=71). In the area of state and

federal requirements, unrealistic expectations of testing (4 mentions, 5.4%, *N*=74) and

teacher requirements (3 mentions, 4.1%, *N*=74) were mentioned most often. The

teacher issues discussed most frequently were finding Montessori certification

programs for teachers (5 mentions, 6.8%, *N*=73), hiring qualified teachers (3

mentions, 4.1%, *N*=73), and meeting requirements for Montessori and state

certification (3 mentions, 4.1%, *N*=73).

Table 10: Ratings of Concerns for School

	% Major Concern (5)	N	Mean (5-point scale)	SD
Budget cuts	49.3	71	4.30	0.87
Federal requirements	28.4	74	3.41	1.34
State requirements	23.0	74	3.41	1.30
Teacher issues	11.0	73	2.92	1.19
District support	8.1	68	2.84	1.32
Parent support	6.8	74	2.35	1.23
Community support	6.8	72	2.31	1.16

Scale: 1= Not a Concern to 5= Major Concern

Respondents were given the opportunity to list concerns other than those

outlined in the survey. The most commonly mentioned other concerns dealt with

aspects of staffing (20%, *N*=64 responses), school facilities (19%, *N*=64 responses),

or issues with administration support (8%, *N*=64 responses). Staffing issues included finding, training, and keeping Montessori teachers. Facilities issues included insufficient space to grow, classrooms that are too small for an effective Montessori environment, and funding needs for space particularly for charter schools who often do not receive support for facilities. Administration support issues included consistency in administration staff and lack of Montessori knowledge in administration.

In addition to addressing teacher issues relative to other potential concerns, respondents were asked about their attitudes toward two specific aspects of teaching staff: finding qualified teachers and the challenge of meeting NCLB requirements for "Highly Qualified Teachers." The results showed that finding qualified teachers (32.9% strongly agree, *M*=3.63, *N*=73, *SD*=1.30) appeared to be more of a challenge than the "No Child Left Behind" requirement for "Highly Qualified Teachers" (22.4% strongly agree, *M*=2.81, *N*=75, *SD*=1.57).

Need for Additional Information

This study also explored areas in which school leaders saw value in having additional information. As shown in Table 11, Montessori-appropriate assessment tools, other Montessori schools' assessment strategies and academic achievement in Montessori compared to other approaches were the most popular types of information desired. Less interest was expressed in comparing student attitudes and behavior in Montessori classrooms relative to other approaches. Teacher attitudes regarding student assessment fell at the bottom of the list.

Table 11: Usefulness of Types of Information

	Extremely Useful (5)	N	Mean (5-point scale)	SD
Montessori-appropriate assessment tools	61.1	70	4.40	0.91
Other Montessori schools' assessment strategies	56.9	70	4.30	1.00
Academic achievement in Montessori compared to other approaches	51.4	71	4.34	0.83
Student attitudes toward education in Montessori compared to other approaches	45.8	72	4.14	1.04
Student behavior in Montessori classrooms compared to other approaches	45.8	72	4.04	1.13
Teacher attitudes regarding assessment	33.3	72	3.57	1.31

Scale: 1= Not at all Useful to 5=Extremely Useful

Participants had the opportunity to list other types of useful information beyond those provided in the survey. Most of the items listed related to learning about how other schools handle various challenges. Teacher issues were mentioned in one out of five suggestions (20%, *N*=41 responses). Learning about how other schools incorporate Montessori and state standards (12%, *N*=41 responses) and how they deal with testing requirements (12%, *N*=41) were also of interest. Specifically in the area of research, follow-up studies regarding the long-term effects of Montessori education were mentioned in 15% of suggestions (*N*=41 responses).

These results provided important information about public Montessori education in three areas: (1) enrollment characteristics and Montessori practices, (2) challenges in aligning Montessori elementary education with traditional standards, and (3) concerns of public Montessori elementary school leaders regarding the potential impact of NCLB.

Chapter 5: Discussion

The findings from this study describe the progress of public Montessori elementary schools in their efforts to balance the challenges of operating a progressive program within a traditional context. These schools must balance the elements of a child-centered, Montessori environment which fosters freedom with responsibility while simultaneously addressing the demands of mainstream state and federal requirements. The problem has become more widespread as the number of public Montessori schools has increased through the expansion of school choice programs. At the same time, school districts, states and the federal government are exerting more control over all schools through more stringent and narrower standards for academic performance and teacher qualifications. While Montessori schools strive to succeed under these traditional standards, growth opportunities may appear on the horizon through further expansion of school choice, increased alternative teacher certification programs and school restructuring.

Through an online survey, this study gathered input from 85 leaders in public Montessori elementary schools describing their schools' enrollment, their Montessori practices and the challenges they face in the mainstream environment in the United States. In terms of enrollment, the vast majority of these programs were either growing or remaining stable. Most schools could not accommodate all the children wishing to attend and have resorted to a lottery process for admission. While

extremely small programs existed, the average program enrolled over 100 students.

About one-third of the students in these schools participated in free or reduced lunch

programs, and about the same proportion were Indian, Black, Hispanic or some other

minority ethnicity.

Most schools appeared to be reasonably successful at living up to the ideals of

establishing truly Montessori environments within public schools based on the

characteristics identified by the American Montessori Society and Association

Montessori Internationale as critical to the success of Montessori schools in the public

sector. These schools were particularly strong in employing certified teachers and

supporting them through in-service training, consultation and professional support. A

large proportion of schools reported three-year age groupings of students, parent

education programs and a full complement of Montessori materials in classrooms

compatible with "prepared environment" principles. The greatest opportunities to

strengthen the Montessori programs in these schools were in the areas of school

accreditation, administrator certification and scheduling specialty programs (music,

art, physical education, etc.) around uninterrupted work times.

Even though most school leaders would prefer tracking student progress using

assessment tools other than tests, they seemed to be managing to deal with NCLB

testing requirements. Practically all schools were required to participate in at least

some of their district's regularly scheduled standardized tests, with the vast majority

participating in them all. However, this practice was in place for most schools long

before NCLB went into effect. While school leaders believed the NCLB testing

requirements pose a challenge for their schools, they reported that their schools perform well on district tests, which actually provide an opportunity for their schools to demonstrate success. Even though a sizable group believed that standardized testing conflicts with Montessori philosophy, many provided test-taking lessons for their children. There was no widespread agreement that Montessori education fails to prepare children for standardized testing or that schools' participation in standardized testing compromises the character of their Montessori programs. Interestingly, no differences were found in attitudes toward testing when comparing respondents who had Montessori certification and those who did not. This could be due to other factors not considered in the analysis, such as tenure, education level or age.

The study also gauged the relative impact of the challenges faced by these school leaders. By far, budget cuts topped the list of concerns. Budget cuts received almost twice as many ratings of "major concern" compared to federal or state requirements, the next most problematic areas. Parent, teacher, school, community, and district issues caused much less concern. While teacher issues were not listed as a major concern, finding qualified teachers was seen as more of a challenge than the NCLB requirement for Highly Qualified Teachers.

This study identified areas in which respondents perceived a need for additional research to help address the challenges faced by public Montessori schools. Not surprisingly, information related to academic achievement of Montessori students topped the list in terms of usefulness. Montessori-appropriate assessment tools were seen as the most useful type of information, followed by other Montessori schools'

assessment strategies, and academic achievement in Montessori compared to other approaches. The information gaps identified in this study will guide the investigator in the identification of research questions to be pursued in future research.

Limitations

Missing survey data was the primary limitation in this study. Some participants encountered problems with the website used to administer the online survey. Twelve individuals experienced a technical problem with the site while completing the survey. Despite multiple attempts, they were unable to complete the survey. Since they were able to provide most of the information requested, their data were included in the analysis. In addition, due to the self-administered nature of the online survey, some respondents failed to answer some questions resulting in varying sample sizes for many questions.

Conclusion

This study provides an important update on the status of Montessori education in public elementary schools as they begin facing the new challenges of NCLB. The study finds that Montessori continues to be a popular option in public schools across the U.S. even though they struggle with budget cuts, stricter state and federal requirements and teacher shortages. Public Montessori elementary schools strive to maintain a unique educational environment through certified teachers, ongoing professional support and well-equipped classrooms.

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APPENDIX A

Online Survey Instrument

Thank you for agreeing to participate in this study. The goal of this project is to understand the characteristics of public Montessori elementary schools and the challenges they face to their long-term success. Your input will be vital to the successful completion of this project.

For this study, it is important to gather opinions directly from leaders in Montessori schools. Are you in a leadership role in your school? *(For example, principal, vice principal, head teacher, director, curriculum coordinator, etc.)*

- o Yes
- o No

Thank you for your willingness to help. Please forward the e-mail containing the link to this survey to someone in a leadership role in your school. *(For example, principal, vice principal, head teacher, director, curriculum coordinator, etc.)* Please contact akmurray@ku.edu if you need further assistance.

INFORMED CONSENT STATEMENT
This study is being conducted as a thesis by Angela Murray, a doctoral student at the University of Kansas in the School of Education. The purpose of this online survey is to better understand the characteristics and challenges of public Montessori elementary schools. Participation should only require 15-20 minutes of your time.

The School of Education and the University of Kansas are concerned with the protection of persons participating in research. Your participation is strictly voluntary, and you are free to withdraw at any time. If you choose to terminate the survey, none of your responses will be used in any data analysis procedures.

Your individual participation in this study will be strictly confidential. Your responses will be tied to your school identification number for analytical purposes. However, only the researcher conducting this study will have access to this identifying information. It will not be disclosed in the final results in any way, nor will your individual results be disclosed.

If you have any questions about any aspect of this study, now or in the future, please feel free to contact me or my advisor. If your district requires such requests to go through their offices, please e-mail their contact information to me at akmurray@ku.edu and I will contact them for permission. Thank you for your participation.

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<u>Please acknowledge your consent to participate below</u>
I have read the Consent and Authorization page. I have had the opportunity to ask, and I have received answers to, any questions I had regarding the study and the use and disclosure of information about me for the study. I understand that if I have any additional questions about my rights as a research participant, I may call the University of Kansas Human Subjects Committee at (785) 864-7429 or write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas, 66045-7563, or email David Hann, Coordinator, at dhann@ku.edu.

I agree to take part in this study as a research participant. I further agree to the uses and disclosures of my information as described above. By clicking on CONSENT below, I affirm that I am at least 18 years old and that I have received a copy of this Consent and Authorization form.
- o   I give my consent and authorization and wish to participate in the survey
- o   I decline to give my consent and authorization and do not wish to participate in this survey

Which of the following best describes your school? (Please check all that apply.)
- o   Magnet School
- o   Charter School
- o   Neighborhood School
- o   Other _____

If your school includes a Montessori program along with other educational programs, please complete this survey referring only to the Montessori portion of the school. If you are a leader for more than one Montessori school, please respond to the following questions as they relate to the largest school with which you are involved.

What is the youngest age child your school serves? (Please enter age in years. For example, enter the number 6 if six year olds are the youngest children your school serves.) _____

What is the oldest age child your school serves? (Please enter age in years. For example, enter the number 12 if twelve year olds are the oldest children your school serves.) _____

How many children are enrolled in your Montessori program at any level? _____

How many children are enrolled in your Montessori program at the elementary level? *(Including both Upper and Lower Elementary)* _____

In terms of the overall size of your program, would you say that your school is…
- o   Growing
- o   Remaining stable
- o   Declining

Compared to your enrollment capacity, do you typically…
- o   Have more children wishing to attend your school than you can accommodate
- o   Have about the same number of open spaces as children wishing to attend
- o   Have unfilled spaces in your program after enrolling all children wishing to attend

Which of the following best describes your admission process?
- o Lottery
- o First come, first served
- o Selective admission criteria
- o Other _____

By which of the following Montessori organizations is your school accredited, if any? (Please check all that apply.)
- o Association Montessori Internationale (AMI)
- o American Montessori Society (AMS)
- o Montessori Education Programs International (MEPI)
- o Montessori School Accreditation Council (MSAC)
- o National Center for Montessori Education (NCME)
- o Southwestern Montessori Training Center
- o None of the above
- o Other _____

What proportion of the lead teachers in your school would you estimate have Montessori certification in the levels that they teach? (Please enter percentage without a % sign.) _____

From which organizations do you recognize teacher certification? (Please check all that apply.)
- o Association Montessori Internationale (AMI)
- o American Montessori Society (AMS)
- o Montessori Education Programs International (MEPI)
- o National Center for Montessori Education (NCME)
- o Southwestern Montessori Training Center
- o None of the above
- o Other

What is your policy regarding Montessori certification for teachers?
- o Required to have certification for applicable age group
- o Required to have certification for any age group
- o Required to be in process of training for certification
- o Do not require Montessori training
- o Other _____

What is your policy regarding state certification for teachers?
- o Require state certification for teachers
- o Require teachers to be working on state certification
- o Allow alternative or emergency state certification for teachers
- o Do not require state certification for teachers
- o Other

Please use the checklist below to indicate whether or not your school has...

	Yes	No
Experienced Montessori teacher serving as curriculum coordinator	○	○
Montessori inservice training for teachers	○	○
One trained paraprofessional in each classroom in addition to lead teacher	○	○
Three year multi-age groupings for children	○	○
Ongoing Montessori consultation or professional support for teachers	○	○
Classrooms compatible with Montessori's "prepared environment"	○	○
Parent education programs to promote understanding of Montessori principles	○	○

At the elementary level, how many minutes is the longest uninterrupted work cycle in a typical day? (Please enter number in minutes.) _____

What proportion of the children in your elementary program would you estimate have ANY Montessori primary (age 3-6) experience? (Please enter percentage without a % sign.) _____

To what degree does your school participate in your district's regularly scheduled standardized tests? Do you participate in...
- o ALL of the tests
- o SOME of the tests
- o NONE of the tests

Is participation in the regularly scheduled standardized tests required or voluntary?
- o Required
- o Voluntary

For how many years has your school participated in the regularly scheduled standardized tests administered in your district? _____

Which testing program is administered in your district?
- o California Achievement Test
- o Iowa Test of Basic Skills
- o Another testing program created for your state
- o Other _____

Please indicate which grades in your school participate in your district's standardized tests.

	Yes	No
1st grade	○	○
2nd grade	○	○
3rd grade	○	○
4th grade	○	○
5th grade	○	○
6th grade	○	○
7th grade	○	○
8th grade	○	○
9th grade	○	○
10th grade	○	○
11th grade	○	○
12th grade	○	○

Other than your district's testing program, do you conduct any standardized testing in your school?
- o Yes
- o No

Other than your district's program, what types of testing do you conduct?
- o California Achievement Test
- o Iowa Test of Basic Skills
- o Another testing program created for your state
- o Other _____

For each of the following statements, please indicate your level of agreement or disagreement. There are no right or wrong answers.

	Strongly Disagree				Strongly Agree
Our school performs well on district standardized tests	○	○	○	○	○
Our school is required to participate in standardized testing in such a way that it compromises the character of the Montessori program	○	○	○	○	○
Standardized tests present an opportunity for our school to demonstrate success	○	○	○	○	○
Specialty programs (music, art, etc.) are scheduled around the uninterrupted work periods	○	○	○	○	○
The Montessori approach fails to prepare children for the experience of standardized tests	○	○	○	○	○
Our school offers a full complement of Montessori materials in each classroom	○	○	○	○	○
Our school is committed to the core Montessori curriculum	○	○	○	○	○
Our school prefers tracking student progress using assessment tools other than tests, such as observation, portfolio, performance assessment with rubric, etc.	○	○	○	○	○
The "No Child Left Behind" requirement for "Highly Qualified Teachers" is a concern for our school	○	○	○	○	○
"No Child Left Behind" testing requirements pose a challenge for our school	○	○	○	○	○
Finding qualified teachers is difficult for our school	○	○	○	○	○
Our school implements elementary education according to the original vision of Maria Montessori	○	○	○	○	○
Our school provides test-taking lessons for children	○	○	○	○	○
Standardized tests conflict with Montessori philosophy	○	○	○	○	○

Please indicate the degree to which each of the following is a concern for your school.

	No Concern				Major Concern
Federal requirements	○	○	○	○	○
State requirements	○	○	○	○	○
Budget cuts	○	○	○	○	○
District support	○	○	○	○	○
Teacher issues	○	○	○	○	○
Parent support	○	○	○	○	○
Community support	○	○	○	○	○

For the areas you rated as major concerns above, please describe what aspects represent the greatest challenges for your school's future.

Other than those listed above, what other major issues concern you related to your school's future?

Please indicate how useful each of the following types of information would be to you and your school.

	Not at all Useful				Extremely Useful
Other Montessori schools' assessment strategies	○	○	○	○	○
Student attitudes toward education in Montessori compared to other approaches	○	○	○	○	○
Montessori-appropriate assessment tools	○	○	○	○	○
Student behavior in Montessori classrooms compared to other approaches	○	○	○	○	○
Teacher attitudes regarding assessment	○	○	○	○	○
Academic achievement in Montessori compared to other approaches	○	○	○	○	○

Other than the topics listed above, what additional information would be useful for you and your school?

Now, please tell me a little about your background. Keep in mind that your responses will be held in the strictest confidence and will only be used in aggregate analysis.

If you have Montessori certification, please indicate for which levels. (Check all that apply.)
- o Toddler (0-3)
- o Primary (3-6)
- o Lower Elementary (6-9)
- o Upper Elementary (9-12)
- o Middle School (12-15)
- o High School (15-18)
- o Montessori Administrator Credential
- o None of the above
- o Other

From which organizations did you receive your Montessori training? (Please check all that apply.)
- o American Montessori Society (AMS)
- o Association Montessori Internationale (AMI)
- o National Center for Montessori Education (NCME)
- o Montessori Education Programs International (MEPI)
- o Southwestern Montessori Training Center
- o Any MACTE accredited diploma
- o Other

How many times were you able to attend Montessori conferences last year? (Enter 0 if you were not able to attend any Montessori conferences last year) _____

If you were ever a Montessori classroom teacher, how many years did you spend in that role? (Enter 0 if you have not been a Montessori classroom teacher)
_____

How many years were you a classroom teacher in a NON-Montessori environment? (Enter 0 if you have not been a teacher outside a Montessori classroom)
_____

What is the highest level of education you have completed?
- o Bachelor's Degree
- o Master's Degree
- o Doctoral Degree
- o Other

How many years have you been the principal of the school you are currently at?
_____

Have you been able to pursue ongoing Montessori Administrator or Leadership training?
- o Yes
- o No

How many years have you been in administration in ANY school? (Including department chair, vice principal, principal, etc.) _____

What is your title?
- o Principal
- o Vice principal
- o Head teacher
- o Director
- o Curriculum coordinator
- o Other _____

Finally, please tell me a little about your school. Once again, if your school includes a Montessori program along with other educational programs, please answer these questions only referring to the Montessori portion of the school.

In which state is your school located?   DROP DOWN

What proportion of your school's student population would you estimate are on free or reduced lunch? _____

Thinking about the ethnic composition of your school, about what proportion of your students identifies with the following groups?
- o American Indian or Alaska Native
- o Asian
- o Black or African American
- o Hispanic or Latino
- o White
- o Other

Thank you very much. If you are interested in participating in future research regarding Montessori in public schools or if you would like to receive a summary of results from this study, please check the appropriate boxes and provide your e-mail address in the box below.
- o I would like to participate in future research regarding Montessori in public schools
- o I would like to receive a summary of results from this study

APPENDIX B

AMI/USA Affiliated School Status

Due to a variety of circumstances, some schools are unable to meet the requirement that all teachers be holders of AMI diplomas at the appropriate age level. Consequently, AMI/USA has instituted an alternative plan, the Affiliated School Status, which holds to all requirements of AMI recognition except the one requiring an AMI diploma holder in each classroom. To qualify for this status at least 80% of the teachers must be AMI credentialed at the appropriate age level. Such schools will be given a three year grace period to come into compliance with the requirements for full AMI recognition.

To qualify for the Associated Status at least 50% of the teachers/administrators must hold an AMI diploma and at least one AMI teacher must be teaching at the appropriate age level.

This status is a transitional category for those schools in the process of meeting pedagogical standards for full AMI recognition. Based upon the recommendation of the consultant/AMI-USA, Associated schools will be given a grace period of up to three years to come into compliance with the requirements for recognition. Public schools are affiliated with AMI/USA through the Associated Status.

In the United States, AMI recognition is issued to schools that have met the standards outlined in this section of our website. Although no two schools are the same, adhering to the distinct philosophical and operational characteristics outlined above guarantees that a school meets the AMI criteria. The following table summarizes these requirements:

REQUIREMENTS FOR ASSOCIATED STATUS

- AMI diploma requirements for teachers: 50% of teachers / administrators with one at appropriate. age level
- Consultation visit once every three years
- AMI approved materials
- Mixed age groups
- Recommended class size of 28-35 children *
- Uninterrupted 3 hour morning work cycle, 5 days/week
- Extended day 5 days/week
- One trained teacher/class
- Maximum of one non-teaching aide
- For the primary (3-6) and elementary (6-12) classes. Recommended class size for the toddler class is between 10-12 children. Also includes public schools

Retrieved from http://www.montessori-ami.org/

APPENDIX C

ESSENTIAL ELEMENTS OF SUCCESSFUL MONTESSORI SCHOOLS IN THE PUBLIC SECTOR

Montessori Teachers

- Employ Montessori teachers who have Montessori credentials for the levels they teach.
- Maintain an active and open recruitment for Montessori credentialed teachers.
- Budget for future Montessori teacher education for non Montessori-credentialed teachers.
- Provide professional Montessori in-service by experienced credentialed Montessori educators.
- Contract for on-going internal and periodic external Montessori consultation and/or professional support as a follow up to Montessori teacher education.
- Employ one paraprofessional per classroom, each having received Montessori orientation for that role.

Administration

- Employ an experienced Montessori teacher to serve as curriculum coordinator.
- Employ a building principal/educational leader who has knowledge of Montessori principles and curriculum through Montessori coursework, Montessori Administrator Credential and/or annual conference exposure.
- Maintain commitment to the core Montessori curriculum and instruction even with changes in administrative staff.
- Sustain the support of the central administration through high profile communications about program development.
- Recognize that the best implementation process is to begin with the 3-6 age group and add one age at a time for a gradual progression.

Recruitment/Parent Education

- Provide Montessori parent education programs that promote understanding of Montessori principles and curriculum.
- Develop an admission process that informs parents about the nature of Montessori and seeks the necessary commitment to the program.

Curriculum/Environment

- Offer a full complement of Montessori materials (about $25,000 per classroom) purchased from Montessori dealers.
- Develop a classroom design that is compatible with Montessori "prepared environment" principles.
- Create uninterrupted daily work periods of 90 minutes to 3-hours, considering the 3-hour work cycle as ideal.

- Integrate specialty programs (music, art, physical education, etc.) around the uninterrupted work periods.
- Apply the appropriate multi-age groupings: 3-6, 6-9, 9-12, 12-15, necessary for the diversity, flexibility, and reduced competition integral to Montessori.

Assessment

- Use a process of reporting student progress that is compatible with Montessori and includes parent conferences and authentic assessment tools such as observation, portfolio, performance assessment with rubric, etc.
- Implement state mandated assessments in such a way that the character of the Montessori program is not compromised.

Professional Development

- Budget for continuing education through Montessori workshops and conferences.
- Maintain membership with one or more of the professional Montessori organizations and seek Montessori accreditation to assure consistent quality.

Endorsed by the following organizations:

American Montessori Society **(AMS)**
Association Montessori Internationale **(AMI)**
North American Montessori Teachers' Association **(NAMTA)**
National Center for Montessori Education **(NCME)**
Montessori Education Programs International **(MEPI)**
Southwestern Montessori Training Center

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